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Cadetship Test Review Material

A guide to entrance examination/
admission test
to

Philippine Military Academy (PMA)
Philippine National Police (PNPA)
Philippine Merchant Marine Academy (PMMA)
Maritime Academy of Asia and the Pacific (MAAP)
NYK-TDG Maritime Academy (NTMA)

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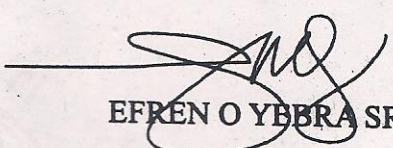
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Before the Examination

A. Pre-Exam Preparation	It all depends on you when you would like to start your review. You can start it once you have filed your application form (at least 3 months before the exam) or once you have received your examination permit (at least a month before the scheduled exam). Other academies allow walk-in applicants. Always bear in mind that the most important thing is to equip you with the knowledge and skill through complete review of subjects included in the examination. 1. Make a list and set aside all the materials including books, reviewers, and notes that would cover all the subjects. Visit bookstores, and look for review materials particularly on your weakest subjects. 2. Have a study plan and stick to it as much as possible. You must consider comfort, efficiency and the complete coverage of all the subjects. Concentrate on subjects you believe that you do not have sufficient knowledge. 3. Take advantage of other review classes normally given during summer or attend an organized review class in your community in case there is one. This will provide you with additional input for your personal review. 4. Develop speed and accuracy in answering tests by taking timed practice tests that simulate the actual examination. 5. Engage regularly in physical/athletic activities. Not only is it good for your health, but you are also one step ahead of the other applicants once you have passed the examination and have been scheduled to report for physical/medical examination.
The Day Before	1. After months of hard work and reading loads of review materials, it is time to give yourself a much needed rest. 2. You can visit your examination venue to familiarize yourself with the route and get the feel of the place where you will be taking the examination. You can make a 'dry-run' and record the travel time from your residence to the examination center to make sure that you will arrive on time for the examination. 3. Go to church and leave everything to God knowing you have done your best.
C. The Night Before	1. Make sure you get enough sleep. Relax. Do not get excited. Rest early. 2. Do not 'cram' because you are only exhausting your self emotionally and mentally. As the song goes, "if you don't know it by now, you will never, never know it." 3. Before going to sleep, prepare all the things you are required to bring on examination day. 4. Pray before you go to bed and ask God for blessings.

B. During the Examination

A. On the Day Reminders	1. Avoid being late. Use an alarm clock. Ask your sibling(s), parent(s) or a friend to wake you up.
	2. Eat a decent breakfast to provide your body and brain sufficient nutrients and energy for the mental war ahead.
	3. Wear comfortable attire and try to appear smart. By looking good, you appear to be ready. It will help you in the psychological war.
	4. Do not forget to bring your examination permit, pencils, erasers and other things stated in the permit.
	5. If possible, do not bring other things like crash helmet, even cell phone since it will be surrendered to the proctor anyway together with all your personal belongings. You may lose your concentration and feel stressed by looking at them once in a while, thinking that you may have an incoming call or message, or it may be misplaced.
	6. Attend to your personal needs before entering the room you are assigned. You may no longer be allowed to get out once the examination begins.
B. Examination Proper	1. Present your examination permit to the proctors. They will give you your room number and seat assignment, then measure your height and possibly your weight before you can enter your room.
	2. Once inside the room with the rest of the examinees, you will be instructed to place all your personal belongings in front.
	3. Synchronize your watch with the proctor's time. It is rather more convenient to manage time in your watch than looking at the clock every now and then.
	4. Examination booklets will then be distributed. Afterwards, you will be given detailed instructions about the tests and what you are expected to do.
	5. You are to work on a test during and only during the specified time as announced by the proctor.
	6. You will be provided with a separate answer sheet where you will place your answers.
	7. Do not begin the test until the proctor gives the signal.
	8. Make sure that you understand the instructions before you start. In case you have some questions regarding the test, call the attention of the proctor in a manner that it will not distract other examinees.

- | | |
|--|---|
| | <p>9. Exercise time management by finding the average time to be spent in answer a question by dividing the number of minutes by the number of question. Answer first question that you know well and can answer quickly, then go back to answer the difficult questions you left behind.</p> |
| | <p>10. Remain FOCUSED and do not PANIC. Pace yourself according to the question's degree of difficulty. The most important thing is, all the questions have been answered at the end of the examination.</p> |
| | <p>11. If you encounter an item that you do not know the answer to, make a logical guess normally arrived by elimination rather than leaving it blank.</p> |
| | <p>12. Make your mark on the answer sheet heavy and dark. If you change your answer, be sure to erase it completely and mark the new answer.</p> |
| | <p>13. If you manage to finish any specific test ahead of time, go over the test particularly on questions you are not sure of the answers and check if you have all the questions answered. Again, do not leave any questions unanswered.</p> |
| | <p>14. Think positive. Again, thank God for guiding you before, during, and after the examination.</p> |

"MY GREATEST ENEMY IS MY SELF.

MY MIND IS THE BATTLEFIELD.

THE BEST STRATEGY TO WIN IS TO KNOW MY SELF."

- RMAMA



Philippine Military Academy (PMA) Fort del Pilar, Baguio City

Philippine Military Academy traces its beginnings to the *Akademya Militar ng Pilipinas* founded 25 October 1898 in Malolos, Bulacan, pursuant to the decree of the revolutionary President Emilio Aguinaldo.

The establishment of the Akademya, with Kapitan Manuel Sityar, as its first director, aimed to provide complete and quality training for future officers who were to lead the Regular Army of the Philippines after the independence.

On 21 December 1935, the military training school was formally established as the Philippine Military Academy pursuant to Commonwealth Act Number 1 or the National Defense Act. The corps began its exodus from Camp Allen to the permanent PMA site in Loakan on 20 May 1950.

On 11 January 1956, the site occupied by PMA was renamed from "Loakan" to Del Pilar Heights and later to Fort Del Pilar in honor of General Gregorio del Pilar.



Melchor Hall

PMA Vision

We envision the Philippine Military Academy by 2015 to be the country's premier leadership school, producing military professionals of character, dedicated to protect and help build the nation.

PMA Mission

"To instruct, train, and develop the cadets so that each graduate shall possess the character, the broad and basic military skills, and the education essential to the successful pursuit of a progressive military career as a values-centered leader in selfless service to the AFP and the nation."

PMA Motto

Courage

Integrity

Loyalty

AFP Branches of Service



Philippine Army



Philippine Air Force



Philippine Navy

REVIEW ON NATURAL SCIENCES

Introduction

Science as an area of learning can also be an effective medium to inculcate values to would be soldiers like you. An application of scientific theories and laws is imperative if you want to become a professional protector of our land and of our people.

The natural sciences review shall focus on the following objectives:

1. Apply scientific knowledge and principles in biology, chemistry and physics.
2. Relate scientific knowledge and principles in the military service.

BIOLOGY

BIOLOGY	The science of life. It deals with study of living organisms, their function, structure, growth, origin, distribution, and evolution. The term was introduced in Germany in 1800 and was popularized by the French naturalist Jean-Baptiste de Lamarck as a means of encompassing the growing number of disciplines involved with the study of living forms.
BRANCHES	Today biology is subdivided into hierarchies based on the molecule, the cell, the organism, and the population.
Botany	The study of plants.
Zoology	The study of animals.
Cytology	The study about cells especially their structures and functions.
Anatomy	The study about structural organization of living things. The emphasis is on human bodies than on animal form.
Ecology	The study of ecosystem as a complete unit . Its emphasis is on the interactions of organisms with their environment and with each other.
Entomology	Branch of Zoology dealing with the study of insects .
Genetics	The study of heredity and function and behavior of genes.
Histology	Study of cells and tissue.
Ichthyology	Study of fish.
Mammology	Study of mammals.
Parasitology	Study of parasites and parasitism .

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Cell – the smallest unit of all living organism. Cells are the smallest structures capable of basic life processes, such as taking in nutrients, expelling wastes, and reproducing. All living things are composed of cells.

CELL STRUCTURES	FUNCTIONS
NUCLEUS	The control center of a cell where the cells chromosomal DNA is found.
1. Nucleolus	The place of formation of ribosomes where protoplasm is found.
2. Nucleoplasm	A double lipid bilayer in eukaryotic cells enclosing the genetic material.
3. Nuclear Membrane	The interface between the cells and from surrounding fluids outside.
CELL MEMBRANE	It is filled with liquid which contains organelles.
CYTOPLASM	The organized structure of DNA protein.
Chromosomes	They form complex combination of DNA, RNA and protein
Chromatin	They are complex RNA protein.
Ribosomes	They are the “power house” of the cell.
Mitochondria	They are organelles containing digestive enzymes.
Lysosomes	They process and package the macromolecules such as proteins and lipids.
Golgi Apparatus	scaffolding or skeleton contained within the cytoplasm.
Cytoskeleton	barrel shaped organelle for cell reproduction.
Centrioles	enclosed compartments filled with water containing organic molecules and enzymes.
Vacuoles	

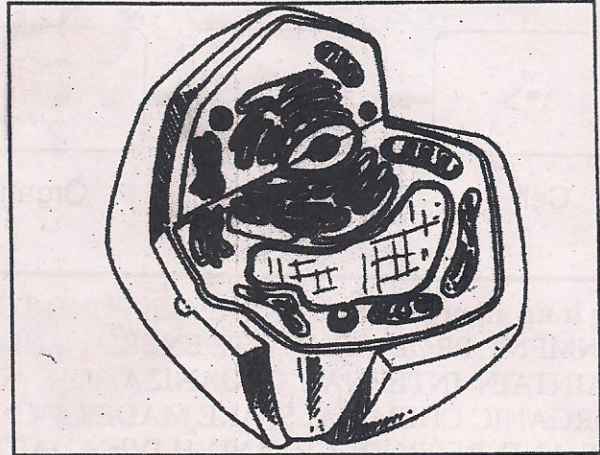
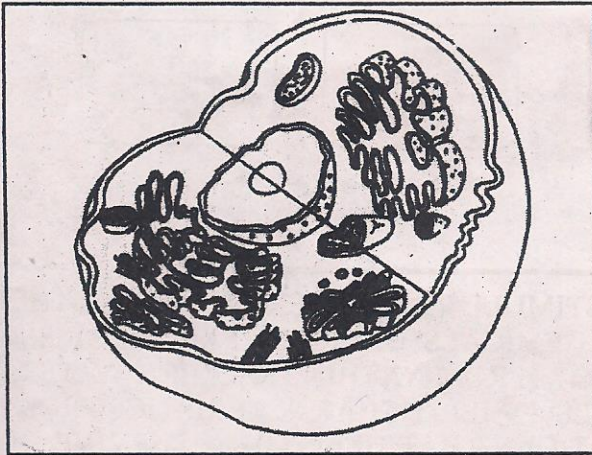
KINDS OF CELLS	DESCRIPTION
Prokaryotes	Cells with nucleus
Eukaryotes	Cells in which genetic materials is DNA

The Cell Theory - states that all living organisms consist of cells.

CHARACTERISTICS OF LIFE

Living things exhibit several common characteristics.

1. **They reproduce.** *This is the process whereby all living organisms produce its own offspring. It is one of the essential functions of plants, animals, and single-celled organisms, as necessary for the preservation of the species as eating is for the preservation of the individual.*



1.1 **Asexual Reproduction** - reproduction not involving meiosis and fertilization.

1.2 **Sexual Reproduction** - reproduction involving meiosis and fertilization.

2. **They grow and develop.** We increase in size and develop our mature form and function. Growth and development are dependent on a sufficient supply of nutrients, minerals, and vitamins, in addition to the production of various hormones by the body.
3. **They use energy.** All cells of an organism undergo chemical reactions. Cells of an organism transform energy, maintain their identity, and reproduce. All life forms—from single-celled algae to mammals—are dependent on many hundreds of simultaneous and precisely regulated metabolic reactions to support them from conception through growth and maturity to the final stages of death.

There are two metabolic processes: anabolism and catabolism. **Anabolism** is constructive metabolism, process of synthesis, which is required for growth of new cells and the maintenance of all tissues. **Catabolism**, destructive metabolism, is a continuous process concerned with the production of the energy required for all external and internal physical activity.

3.1 **Aerobic Respiration** - converts food energy into cellular energy where oxygen is needed

3.2 **Anaerobic Respiration** - converts food energy into cellular energy where oxygen is not needed

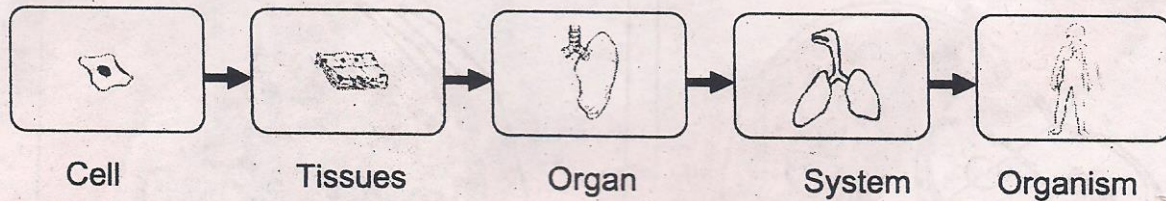
4. **They have definite life spans.** Different species have characteristic life spans that vary greatly in total length and in duration of individual phases. Scientific research reveals that humans have the longest average life span of any mammal.
5. **They can respond and adapt to their environment.** Only living things has the ability to react to certain changes stimuli in his/her environment. Changes in temperature, light, pressure, gravity, chemicals and sound are common stimuli to which living things respond.

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6. They are made of **protoplasm organized into cells**. Living things have complex organization of life, they are composed of cells, that is the fundamental unit structure of all living things. There are some organisms composed of only one cell but still function like other complex organisms do.

Cells are organized into tissues which, in turn, form organs such as leaves, stems, flowers, and fruits and they work together as a system.

Biological Organization Levels

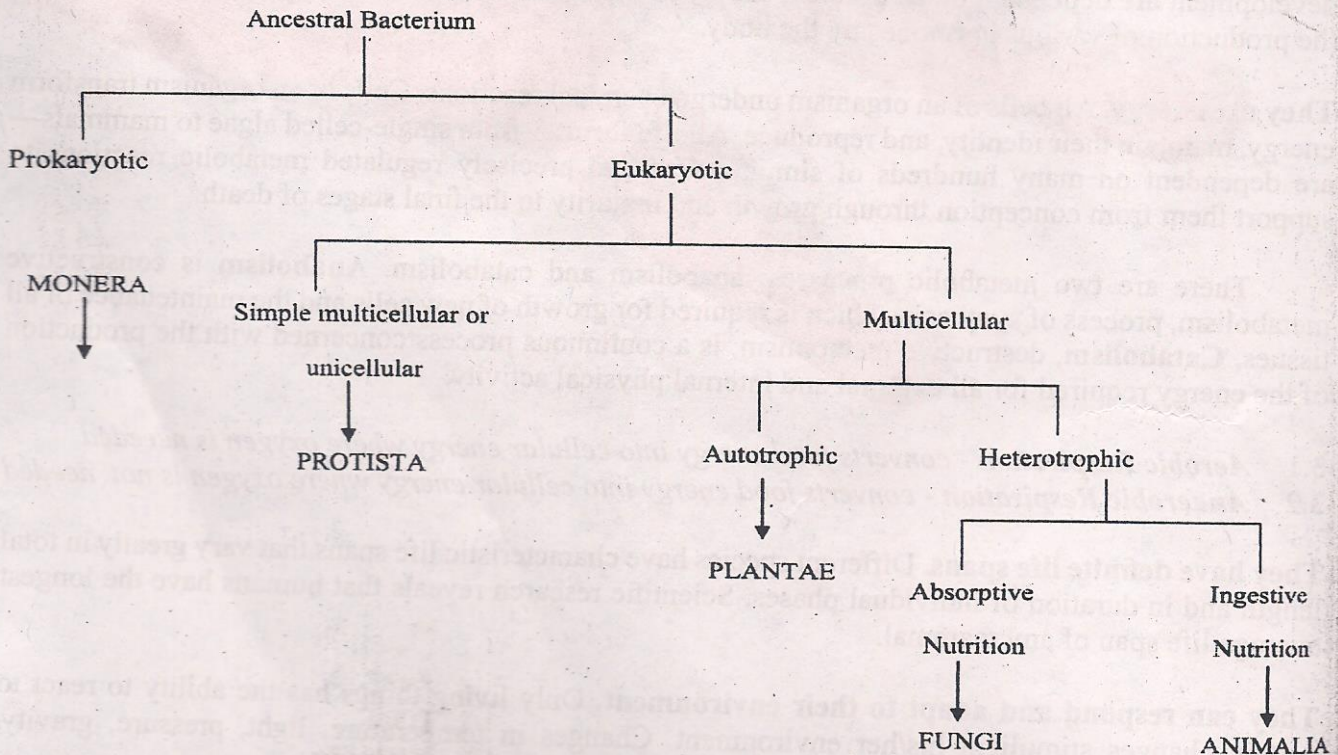


Summing it up all organisms : MOVE; RESPOND TO STIMULI; REQUIRE ENERGY FROM THE ENVIRONMENT; PRODUCE WASTE ENERGY AND CHEMICALS; CARRY OUT METABOLISM AND MAINTAIN INTERNAL ORGANIZATION, GROW FROM WITHIN; REQUIRE WATER; MAKE ORGANIC CHEMICALS; ARE MADE OF CELLS; INHERIT CHARACTERISTICS FROM PARENTS AND REPRODUCE, AND HAVE ADAPTATIONS THAT HELP THEM SURVIVE IN THEIR ENVIRONMENT.

Classification of Living Things

Organizational Structure

Kingdom→Phylum→Classes→Order→Family→Genus→Species



CHEMISTRY

Chemistry	A science that deals with the structure, composition, interactions, and properties of matter. It tells us how to determine the composition of things that interest us, how to make use of available materials and how to create new and improved materials from the simple things around us.
Matter	Anything that has mass and occupies space. All matter have definite properties such as size, shape, color, texture, weight and luster.
Pure Substance	It is either an element or a compound. Water and oxygen are examples of pure substance. These are made up of only one kind of matter with fixed composition and properties.
Elements	An element is composed of only one kind of atom. • There are 92 elements and 21 that have been made by humans. • Elements can be metal (ex. Sodium, potassium, copper, iron, gold, and silver). • Non-metals (ex. Oxygen, Nitrogen, Sulfur, Chlorine, and Fluorine). • Metalloids (ex. Carbon, Silicon, and Arsenic). • Inert or Noble Gases (ex. Xenon, Radon, Helium, neon, argon, krypton,) do not react with other elements or compounds.
Compounds	They are composed of atoms of two or more elements that are chemically combined in different proportions. Water for example is composed of the elements hydrogen and oxygen. Each molecule of water has two atoms of hydrogen and one atom of oxygen that are tightly held.

1. Organic Compounds	These are compounds that contain the elements carbon and hydrogen. Examples are proteins, carbohydrates, sugar and fats.
2. Inorganic Compounds	• ACIDS – turns blue litmus paper red/pink, tastes sour, and can react with other materials sometimes violently (vinegar) • BASES – turns red litmus paper blue, tastes bitter, feels slippery and can react with other materials less violently (soap) • SALTS – formed either directly or indirectly from the reaction between an acid and a base (table salt, milk of magnesia)

Mixture is composed of two or more substances that are not chemically combined so there is no new substance formed. Halo-halo is an example of a mixture. Crushed ice, sweetened tropical fruits, sugar and milk mixed together. Each ingredient is distinct from the other.

Homogeneous Mixture – Are substances with uniform composition and properties throughout like soda drink, sugar dissolved in water and white gold.

Heterogeneous Materials – This is a type of compound made up of two or more different substance like the halo-halo.

Solutions are homogenous mixtures made up of two or more substances spread evenly. It can be a concentrated, unsaturated, saturated or supersaturated solution.



STRUCTURE OF MATTER

Atom – extremely tiny basic building block, irreducible constituent of matter.

Structure of Atom

Electrons - negatively charged particles around the nucleus

Protons - positively charged particles

Neutrons - electrically neutral charged particles

PROPERTIES OF ATOM

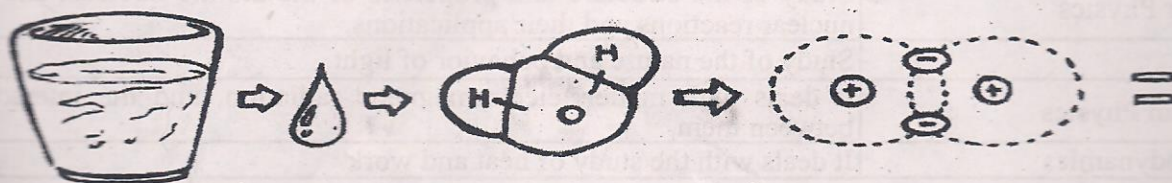
1. **Atomic Number** - equal to the number of protons
2. **Mass Number** - equal to the sum of the protons and neutrons
3. **Atomic Mass and Weight** - mass of the atom in atomic mass unit
4. **Isotopes** - the same element but with different mass number
5. **Radioactivity** - emission of subatomic particles causing spontaneous integration of atomic nuclei.

FIVE STATES OF MATTER

1. **Solids** have definite shape and volume.
2. **Liquids** have no definite shape but they have a definite volume. They are made up of particles that are neither too near nor too far from each other.
3. **Gases** have no definite shape and no definite volume. Their particles are very far apart from each other and are moving randomly.
4. **Plasma** is the state of matter which is between liquid and gas.
5. **Bose-Einstein Condensate**. They exist in gaseous superfluid phase. This phenomenon is observed when atoms are cooled to temperature very near to absolute zero.

Chemical Reactions - process resulting in the interconversion of chemical substances.

1. **Combination Reaction** - $A+B=C$ where A and B are elements or compounds.
2. **Oxidation-Reduction Reaction** - where oxidation and reduction occurs.
3. **Acid-Base Reactions** - reaction occurring between acids and bases.
4. **Displacement Reaction** - reaction where from a compound, one element displaces another.
5. **Exchange Reactions** - forming of more stable products by compound exchanging ions.



Motion - A change in place or position of an object.

Distance - Total length taken or traveled by a moving object.

Example: A car moves 10 kilometers then turned left and traveled another 15 kilometers more

$$\text{Distance} = 10 + 15 = 25 \text{ kilometers}$$

Displacement - A change in position of an object.

Average speed - Total distance traveled for a given period of time.

$$\text{Formula: speed} = \text{distance/time}$$

Example: 15 km per hour, 30 miles per hour [mph]

Velocity - Rate of motion of an object with reference to a direction.

Example: 15 kms per hour going northwest, 30mph going southwest

$$\text{Velocity final} = \text{Velocity initial} + [\text{acceleration}] \times [\text{time}]$$

$$[\text{Velocity final}] = [\text{velocity initial}] + 2 \times [\text{acceleration}] \times [\text{distance}]$$

$$\text{distance} = [\text{velocity initial}] \times [\text{time}] + \text{acceleration} / 2$$

Acceleration - The change in velocity over a given time.

$$\text{Formula: Average acceleration} = \text{Velocity final} - \text{Velocity initial}$$

Scalar - Physical quantity used in physics that has magnitude only.

Example: Distance = 5 kilometers, 15 miles, 30 feet

Vector - Physical quantity used in physics that has magnitude and direction.

Example: Displacement = 5 kilometers Southeast, 15 miles Northwest

Hence, *displacements, velocity, acceleration, momentum, force and electric field* are examples of vector quantity.

Newton's Laws of motion

Sir Isaac Newton developed three laws of motion that explain force and motion.

1. **FIRST LAW OF MOTION (Law of Inertia)**

Explains that an object at rest remains at rest and an object in motion remains in motion in a straight line and at constant speed unless acted upon by an external and imbalanced force.

2. **SECOND LAW OF MOTION (Law of Acceleration)**

Acceleration is directly proportional to the magnitude to the net force inversely proportional to the mass of the object

Formula: $F=ma$

a is acceleration in m/s^2

F is the net force or N (Net force is the sum total of all forces acting on an object)

m is the mass of an object in kg

3. **THIRD LAW OF MOTION (Law of Interaction)**

- Equal magnitude of forces but opposite in direction will result when one object applies a force on the second object.
- Or for every force there is an equal and opposite force it is otherwise described as "action-reaction" system and it governs the propulsion of rockets and jet airplanes.

Energy – The ability to do work.

1. **Kinetic Energy** – The energy in motion.

Formula: where KE [kinetic energy]

M [mass]

V [velocity]

Therefore: $KE=1/2m \times v$

2. **Potential Energy** – Stored energy.

Formula: where PE [potential energy]

M [mass]

G [acceleration]

H [height]

Therefore: $PE=m \times g \times h$

Weight - Heaviness of an object in Newton [N].

Force - A push or "pull" on an object measured by Newton [N].

1. **Normal Force** - Force acting perpendicular to the surface.
2. **Friction** - Forces that opposes motion.
3. **Work** - A force acting upon an object to cause its displacement.

Formula: where W [work in joules]

F [Force applied]

D [displacement]

Therefore: $W = F \times d$

1 JOULE = 1Nm

Practice Test

1. When you press a coconut oil from a tetra pack into an oil dispenser the coconut oil changes its...
A. state
B. shape
C. volume
D. temperature
2. A bus running fast suddenly stops, standing passengers budged forward. What principle explains the movement?
A. Law of Inertia
B. Law of Proportion
C. Law of Gravitation
D. Law of Action and Reaction
3. These are transmitters of message from the different parts of the body to the brain and vice versa.
A. cerebrum
B. brainstem
C. spinal cord
D. hypothalamus
4. It is the major force involved in the creation of high and low tides.
A. Solar radiation
B. Earth's rotation
C. Earth's gravitation
D. Moon's gravitation
5. What principle explains that when a bullet is discharged upward it always goes down?
A. Universal rotation
B. Universal gravitation
C. Principle of revolution
D. Principle of acceleration
6. A dam is a structure that blocks the flow of a river, stream, or other waterway. Some dams divert the flow of river water into a pipeline, canal, or channel. Why is a dam built wider at the bottom than at the top?
A. For aesthetic value.
B. To balance the pressure at the top.
C. To withstand the greater pressure at the top.
D. It anchors the dam better than at the bottom.
7. In which kingdom should breadmold be classified?
A. Fungi
B. Protista
C. Plantae
D. Animalia
8. No solitary ant, honeybee and termite exist. All of them exhibit "caste system" in which each member has a specific duty to perform. This is referred to us _____.
A. anarchism
B. mechanism
C. metamorphism
D. adaptive system
9. Dynamite is an industrial explosive that contains nitroglycerin and absorbant materials like kieselghur (porous, chalky earth), wood pulp, or starch. And it was patented in 1867 by Swedish chemist Alfred Nobel. Chemists describe dynamite as a less volatile and safer substance to handle than pure nitroglycerin.
What does a stick of unlit dynamite demonstrate?
A. kinetic energy
B. nuclear energy
C. potential energy
D. chemical energy

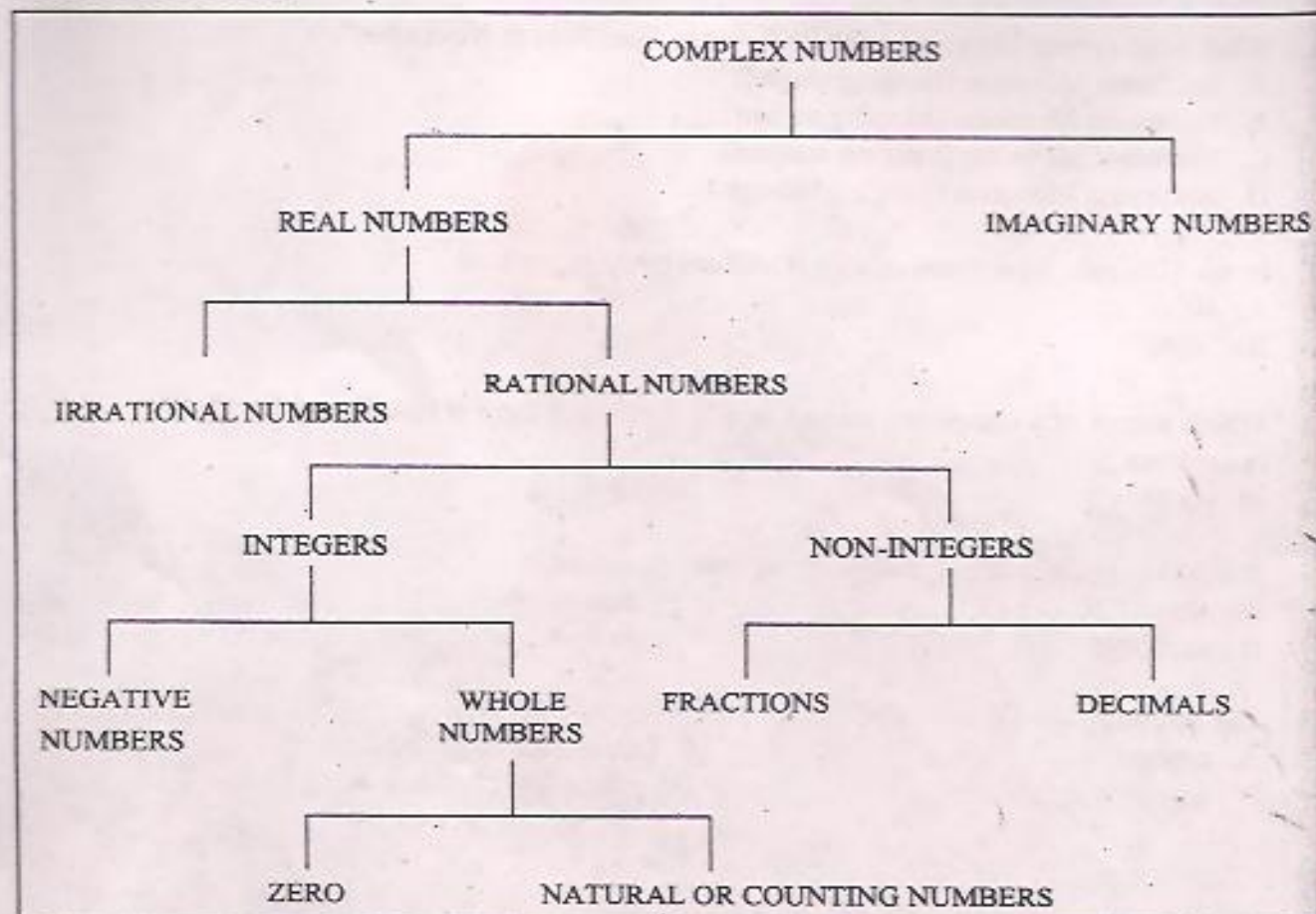
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10. When is work done?
A. Street aides sweeping the street.
B. Lifting an M-16 gun
C. Young people watching a ball game.
D. Policemen and rallyists pushing each other.
11. A Fahrenheit thermometer register 108 degrees on a very hot summer day. What would be the corresponding reading on a Celsius thermometer?
A. 42.77 °C
B. 42.22 °F
C. 4.27 °F
D. 427 °F
12. You are asked to to prepare a solution, which of the following mixtures will you need?
A. sulfur and water
B. salt and water
C. chalk and water
D. oil and water
13. Which hormone promotes the development of secondary male sexual characteristics?
A. estrogen
B. androgen
C. testosterone
D. progesterone
14. Which hormone promotes the development of secondary female sexual characteristics?
A. estrogen
B. androgen
C. testosterone
D. progesterone
15. Camouflage is a word introduced by the French at the beginning of World War I to designate scientific disguise of objects through imitation of natural surroundings. Which type of camouflage is exhibited by viceroy and monarch butterfly?
A. batesian mimicry
B. physical mimicry
C. chemical mimicry
D. mullerian mimicry
16. Which has more inertia?
A. a car
B. a bicycle
C. a tricycle
D. a six-wheeler truck
17. A swimmer pushes the water backward while swimming. How will the water act on the swimmer?
A. The water will pull the swimmer forward.
B. The water will push the swimmer forward.
C. The water will pull the swimmer backward.
D. The water will push the swimmer backward.
18. A net force acting on a moving object causes the object to...
A. stop
B. fall
C. curve
D. accelerate
19. Which does not belong to the group?
A. coal
B. solar
C. nuclear
D. hydroelectric

20. Which is NOT a lever?
A. a scissor
B. a shovel
C. a bottle opener
D. an inclined plane
21. What wind system blows over the Philippines from June to November?
A. Southeast Monsoon (hanging alagad)
B. Northwest Monsoon (hanging aniha)
C. Northeast Monsoon (hanging amihan)
D. Southwest Monsoon (hanging habagat)
22. In the 10% rule, how much energy is utilized by an organism?
A. 10%
B. 40%
C. 70%
D. 90%
23. Which mirror of a compound microscope is used when there is insufficient light?
A. convex
B. concave
C. flat
D. refracting
24. In the nitrogen cycle, the ammonifying bacteria produces...
A. nitrate
B. ammonia
C. ammonium
D. nitrogen gas
25. The arrows in food chain point...
A. upward
B. downward
C. toward the consumer
D. toward the organism being eaten

REVIEW ON MATHEMATICS

NUMBER SYSTEM



POINTERS IN PROBLEM SOLVING

1. Read the problem carefully.
2. Identify the given and the unknown in the problem.
3. Write the equation by determining the operations to be applied and the order in which they are to be applied.
4. Solve the unknown.
5. Check and recheck your answer.

MEASUREMENT

- A. **The Metric System.** The official system of standard measure in the Philippines is the Metric System. The three basic metric units for measurements are:

Length	=	meter (m)
Capacity	=	liter (l)
Weight	=	gram (g)

To convert a smaller unit to a large unit or vice versa in the Metric System a knowledge of these prefixes will be useful.

Prefix	Symbol	Numerical	Exponential
yotta	Y	1,000,000,000,000,000,000,000,000	10^{24}
zetta	Z	1,000,000,000,000,000,000,000,000	10^{21}
exa	E	1,000,000,000,000,000,000,000	10^{18}
peta	P	1,000,000,000,000,000,000	10^{15}
tera	T	1,000,000,000,000,000	10^{12}
giga	G	1,000,000,000	10^9
mega	M	1,000,000	10^6
kilo	k	1,000	10^3
hector	h	100	10^2
deca	da	10	10^1
no prefix means:		1	10^0
deci	d	0.1	10^{-1}
centi	c	0.01	10^{-2}
milli	m	0.001	10^{-3}
micro	μ	0.000001	10^{-6}
nano	n	0.000000001	10^{-9}
pico	p	0.000000000001	10^{-12}
femto	f	0.0000000000000001	10^{-15}
atto	a	0.0000000000000000001	10^{-18}
zepto	z	0.0000000000000000000001	10^{-21}
yocto	y	0.000000000000000000000001	10^{-24}

Other commonly used conversion measures in weight and capacity are:

- 1 liter = 1000 cc (cubic centimeters)
- 1 millimeter = 1 cubic centimeter
- 1 cubic meter = 1000 liters
- 1 liter of water at 4c = 1 kilogram

Converting units in the Metric System

1. Converting a smaller unit to a larger unit

Examples: 100g to kg

$$100\text{g} \times \frac{1\text{kg}}{1000\text{g}} = \frac{1\text{kg}}{10}$$

2. Converting a larger unit to a smaller unit

Example: liters to millimeters

$$1.2 \text{ liters} \times 1000\text{ml} = 1200 \text{ ml}$$

1 liter

Practice Test

ALGEBRA

- What do you get if you subtract $4y^2 - 5y + 2$ from $6y^2 - 5$?
A. $10y^2 - 5y - 3$
B. $2y^2 + 5y - 3$
C. $10y^2 + 5y - 7$
D. $2y^2 = 5 - 7$
- Which is the simplest form of $8 - (-4)^2 \times 3 + 9(-3)$?
A. -27
B. -43
C. -11
D. 32
- If $x = 4$ and $y = -3$, what is the value of the expression $x^2 + 2xy - 4x + 3y \div y^2$?
A. -113
B. -111
C. $-889/9$
D. $-53/3$
- Which gives the quantity for "the time it takes to read a novel that is x page long at a rate of y pages per hour"?
A. $(x + y)$ hours
B. x/y hours
C. y/x hours
D. xy hours
- Sgt. Crisologo bought X number of notebooks at P 25.00 each, Y pad papers at P 22.15 each and Z ballpans at P 9.45 each. If he gave an amount of P 500.00 to the cashier, which equation could tell the change that he would get?
A. $P500 - (25.00 + 22.15 + 9.45)$
B. $P500 - (25.00 + 22.15 + 9.45)(XYZ)$
C. $P500 - (25.00 X + 22.15 Y + 9.45 Z)$
D. $P500 - (25.00 X) (22.15 Y) (9.45 Z)$
- N is less than the square of the sum of the quotient of x and y and the product of x and y . Which equation expresses this relationship?
A. $N = 7 - (x/y + xy)^2$
B. $N = (x/y + xy - 7)^2$
C. $N = (7 - x/y + xy)^2$
D. $N = (x/y + xy)^2 - 7$
- A woman spends here day for recreation, sleep and work in the ratio 1:2:5. How many hours does she spend for sleeping?
A. 15 hours
B. 6 hours
C. 4 hours
D. 3 hours
- A number was decreased by 10% and then the result was increased by 20%. If the result was 3240, what was the original number?
A. 2597
B. 2716
C. 3000
D. 3150
- Sgt. Aguirre has 40 bills consisting of 50-peso bills and 20-peso bills, the total value of which is P1550. How many 20-peso bills does he have?
A. 10
B. 15
C. 20
D. 25

10. Jess is 5 years older than Rose. Six years from now, the sum of their ages will be 37. How old is Jess now?
- A. 21 years
B. 16 years
C. 15 years
D. 10 years

TRIGONOMETRY

1. What is $5\pi/6$ radians in degrees?
A. 15 degrees
B. 24 degrees
C. 77 degrees
D. 150 degrees
2. What is 135° in radians?
A. $3\pi/4$
B. $5\pi/8$
C. $3/4\pi$
D. $2\pi/3$
3. Which of these is equal to $1 + \tan^2 x$?
A. $\cos^2 x$
B. $\sec^2 x$
C. $\cot^2 x$
D. $\sin^2 x$
4. Which of these identities is TRUE?
A. $\cos^2 T - \sin^2 T = 1$
B. $1 + \tan^2 T = \sec^2 T$
C. $\csc^2 T = -\sin^2 T$
D. $\cot T = \csc T$
5. If $\sin A = 1/2$, what is $\tan 2A$?
A. $\sqrt{3}$
B. $\sqrt{3} / 2$
C. $\sqrt{3} / 4$
D. $1/3$
6. What is the exact value of $\sin 75^\circ$?
A. $(\sqrt{3} - \sqrt{3})/4$
B. $(\sqrt{6} + \sqrt{2})/4$
C. $(\sqrt{2} - \sqrt{6})/4$
D. $(\sqrt{3} - \sqrt{6})/4$
7. If triangle ABC is labeled traditionally where $a = 8$, $b = 12$, and angle $c = 48$ degrees, what are we going to use to compute for the unknown parts?
A. Tangent Function
B. Law of Cosines
C. Sine Function
D. Law of Sines
8. What is the exact value of $\sin^2 45 \text{ deg} + \cos^2 60 \text{ degrees}$?
A. $4/3$
B. $1/4$
C. $3/4$
D. $3/2$
9. If $\sin 2x = y = m$, and $\cos 2x + y = n$, what is y ?
A. $(m - n + 1)/2$
B. $(m + n - 1)/2$
C. $(m + n + 1)/2$
D. $(m - n - 1)/2$

10. Which is true about the graph of $y = \sin^2 x + \cos^2 x$?

I. It is a line parallel to the x-axis
 II. It is y-intercept in 1
 III. It is a curve

- A. I only
 B. I and II only
 C. III only
 D. II and III only

GEOMETRY

- The angles of the triangle have the ratio 3:4:5. What is the measure of the smallest angle?
 A. 20°
 B. 30°
 C. 45°
 D. 60°
- The measures of the sides of a regular polygon are integers and the perimeter is 135. What polygon could this be?
 A. A square
 B. A hexagon
 C. An octagon
 D. A nonagon
- The perimeter of an isosceles triangle is 95mm. What is the length of its base if each of the congruent side measures 27mm?
 A. 28mm
 B. 34mm
 C. 37mm
 D. 41mm
- A larger square figure is made up of 9 small congruent squares. If the total perimeter of the 9 smaller squares is 108mm, what is the perimeter of a small square?
 A. 12mm
 B. 24mm
 C. 36mm
 D. 42mm
- The width of rectangular carpet is 4 feet less than the length. What is the length if the perimeter is 72 feet?
 A. 12 feet
 B. 16 feet
 C. 18 feet
 D. 20 feet
- A rectangular lot has a perimeter of 32meters. What is the biggest possible area of this lot?
 A. 81 sq. meters
 B. 64 sq. meters
 C. 63 sq. meters
 D. 60 sq. meters
- The perimeter of a regular triangle is 90cm. What is its area?
 A. 194.86 sq. cm
 B. 225 sq. cm
 C. 389.7 sq. cm
 D. 675 sq. cm
- How many tiles 10cm by 25cm on each side are needed for a bathroom 8m by 10m?
 A. 1,600
 B. 2,400
 C. 3,200
 D. 3,600

9. The shorter base of a trapezoid is 42cm long and the longer base is 48cm long. The height of the trapezoid is 8cm. What is the area of the trapezoid?
- A. 340 cm^2 C. 720 cm^2
B. 360 cm^2 D. 400 cm^2
10. One square meter of vinyl tile costs P70. How much would it cost to cover a circular floor with vinyl if its diameter is 10m?
- A. P5,000 C. P6,000
B. P5,495 D. P6,045

REVIEW ON PARTS OF SPEECH

A. **Nouns** – labels or given names to people, places, things/objects, and ideas.

Example:

People	dwarf, man, woman, boy, girl, Ricky, Mil, Jud, Remmuel
Places	village, barangay, municipality, Philippines, Cebu, Manila
Things	key, toys, Chronicles of Narnia, Colgate, Coca-Cola
Ideas	love, hope, cleanliness, loveliness, success, kindness

1. Classification of Nouns

Common Nouns	General name for a person, place, thing, or an idea. Common nouns begin with a capital letter only when they are at the beginning of a sentence. <i>Example: Boys and girls listen to the story.</i>
Proper Nouns	Specific names of person, places or things. They begin with capital letters. <i>Example: Paulo, Baguio City, Toyota</i>

2. Cases of Noun

Nominative Case	The noun is doing something. <i>Example: The cadet marched with precision.</i>
Objective Case	The noun is being acted upon. <i>Example: Louie shot a three pointer.</i>
Possessive Case	The noun which indicates that a person or things owns something. Usually formed by adding apostrophe (') or an ('s). <i>Example: Arnold's diary was misplaced.</i>

B. **Pronouns** – replaces a noun and must have the same use in the sentence as the noun it replaces.

First Person Pronoun	Refers to the person who is speaking or doing the action. <i>Example: I, me, mine</i>
Second Person Pronoun	Refers to the person spoken to by the speaker. <i>Example: you, your, yours</i>
Third Person Pronoun	Refers to the person or thing being spoken about. <i>Example: He, she, it, his, hers</i>

C. Verbs – are words that express action or state of being.

Regular Verb	Verbs that form their past tense by adding <u>d</u> or <u>ed</u> . <i>Example: hike – hiked; march – marched</i>
Irregular Verb	Verbs that form their past tense by changing their forms. <i>Example: see – saw; come – came; eat – ate</i>

1. Indicative Mood of Verbs

Simple Tense	<i>Example: live- lived- will live</i>
Perfect Tense	<i>Example: have lived, had lived, shall have lived</i>
Progressive Tense	<i>Example: am travelling, were driving, have been reading, have been studying</i>

2. Voice of the Verb

Active Voice	The subject performs the action. <i>Example: Many <u>tourists</u> love the Philippines.</i>
Passive Voice	The subject is the receiver of the action. <i>Example: <u>Philippines</u> is loved by many tourists.</i>
Imperative Mood	Gives command or makes a request. <i>Example: Come here! Will you speak louder!</i>

D. Adjectives – are words that describe a noun or pronouns.

Classification of Adjectives:

Descriptive Adjective	States some quality or condition of the noun or pronoun <i>Example: lovely Rosanna; high mountain; delicious</i>
Limiting Adjective	Indicates quantity, number or a limit to the word it modifies. 1.) Numerical Adjectives – (Ex: first place; one hundred pesos) 2.) Identifying Adjectives – (Ex: such, same, similar) 3.) Articles a. Indefinite Articles – (a, an) b. Definite Articles – (the)

Pronouns used as adjectives	1.) Demonstrative Adjectives – (Ex. <i>This, These, That, Those</i>) 2.) Possessive Adjectives – (Ex. <i>my, your, his, hers, its, ours, theirs</i>) 3.) Interrogative Adjectives – (Ex. <i>What book; which car; whose gun</i>) 4.) Indefinite Adjectives a. Used with singular nouns – (Ex. <i>another, each, either, little, much, neither, one</i>) b. Used with plural nouns – (Ex. <i>Few, both, many, several</i>) c. Used with singular and plural nouns – (Ex. <i>all, any, more, most, other, some</i>)
Degree of comparison	<u>Positive - Comparative - Superlative</u> Example: <i>quick-quicker-quickest; bad-worse-worst; beautiful - more beautiful-most beautiful</i>

E. **Adverbs** – modifies a verb, an adjective or another adverb. It tells where, when, how or to what extent about the word it modifies.

Example: drive carelessly, very happy, studied hard

Intensifiers	Adds emphasis to an adjectives and another adverb. Example: <i>barely, really, completely, too, little</i>
Idioms	Formed by combining directive adverbs and verbs. <u>Directive adverb</u> tells where the action took place. Example: <i>Checkout; breakthrough; cut off</i>

F. **Preposition** – a word that shows the relationship between a noun or pronoun and some other word in the sentence.

Example: *about, before, behind, despite, off, outside, over, since, toward, under, until, upon*

Compound preposition – (Ex. *according to; as well as; by means of, except for; in place of*)

G. **Conjunctions** – connects word, phrases, or sentence.

Coordinate conjunctions	Connects words or group of words having the same rank or importance. Example: <i>and; but; for; nor; or; so; yet</i>
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Correlative conjunctions	Always used in pairs. <i>Example: Both ... and; either ... or; neither ... nor; not only ... but; whether ... or</i> <i>Both Reinier and Gabriel; <u>neither south nor west</u>.</i>
Subordinate conjunctions	Connects an independent clause and a dependent clause. <i>Example: as soon as; as long as; in order that; so that; provided that; as for; because</i> <i>I will send you the result <u>as soon as</u> the test is done.</i>
Conjunctive adverbs	Use to connect clauses that can stand by themselves as sentences. They are preceded by a semi-colon and followed by a comma. <i>Example: accordingly; also; nevertheless; other wise; furthermore</i> <i>Do your job well; <u>otherwise</u>, you shall not be paid.</i>

H. **Interjections** – word or group of words that is used to express surprise, fear, pain or other emotions. It may be followed by an exclamation point or a comma.

Example: Ouch! Hello! Oh! Wow! Whew! Hurray! Great!

I. **Verbals** – formed from a verb but does not function as a verb.

Gerunds	A verb that function as a noun. <i>Example: I enjoy <u>dancing</u>.</i>
Participles	Verb form that is used as an adjective. <i>Example: The band entertains the <u>dancing</u> crowd.</i>
Infinitives	A verb used as a noun, adjective or adverb. It usually begins with the word to. <i>Example: The applicants were advised <u>to go home</u>.</i>

J. Important Pointers in Grammar

Subject-Verb Agreement (SVA)	The verb must agree with its subject in: a.) In Number (singular or plural) <i>Example: Only <u>one</u> of the suspects <u>was</u> arrested.</i> b.) In Person (first, second or third)
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A. Read and Think Critically.

Question and evaluate the accuracy and relevance of the printed word before accepting it as absolute truth. All writers are biased to some extent and, consciously or unconsciously, tend to present one side of an issue more favorably than another because of the way they view the situation.

Some speakers and writers assume that two events that seem to follow each other are, therefore, causally related. If you are faced with such incidents in printed texts, just remember the logic of *non-sequitor* – does not follow (Spache and Berg, 1978).

Be critical with what you hear, see, or read. Look for the author's:

1. **Biases** – prejudices and opinions or judgments that may be based on fact or on fiction.
2. **Point of view** – refers to the opinions and beliefs of the writer or speaker, and the subsequent influence that those beliefs have on what we read and hear.
3. **Purpose and intent** – author/writers or speakers' overriding purpose to inform, persuade, entertain, describe, or ridicule.
4. **Slanted language (connotation of words)** – writers choose words to manipulate the reader and to control the reader's attitude toward a subject.

B. Infer and Draw Conclusions.

Inferring is to interpret unstated meaning; the author provides clues so that the reader can put together facts and details in a logical order and draws conclusions. Conclusions extend the meaning beyond specific ideas to a broader application and incorporate what you already know with what you just discovered.

By using clues provided in text, you can interpret possible reasons for actions, possible motives for participants, and possible results or outcomes of events.

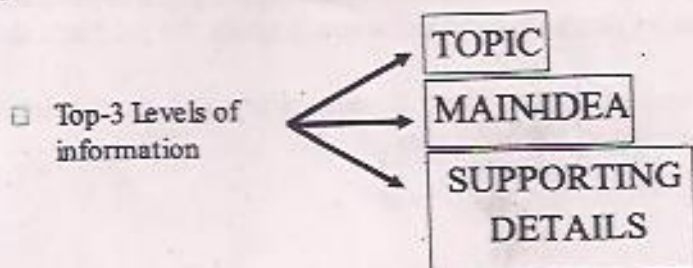
C. Predict Outcomes.

Predictions are made on the basis of prior knowledge. This gives you a purpose for reading and turns reading into an active search to see whether a prediction is correct. For setting up predictions, Nessel (1987) suggests two questions that could be asked at the beginning or at crucial points in the story:

1. What do you think will happen? (e.g. *What do you think the main character will do? How do you think this problem will be solved?*)
2. Why do you think so? (e.g. *What have you experienced and what did you read in the story that leads you to make that prediction?*)

D. Understand Top 3-Levels of Ideas

The main focus of reading is getting the main point – the core, the message, the thesis, the main idea, the central focus, the gist, the controlling idea, and the central thought. It is the author's reason for writing the text.



Generally ideas/information in texts is organized as shown in the schematic diagram. To get the main point of texts, you need to the following.



A. Find Topic

Topic is the general subject of the material. It answer questions like "Who or what is discussed in the text?" or "Who or what is the content of the material?"

B. Recognize Main Ideas

The **main idea** of a selection is the chief point an author is making about the topic. It sums up the author's primary message. The main idea is called the *central point* or *thesis*.

Example:

Topic: Flextime or flexible working hours

Main idea: Flextime has become popular recent years.

C. Locate Supporting Details

- Details develop, explain, and prove the main point or main idea. These are facts, descriptions, and reasons that convince the reader and make the material interesting. Details answer questions and paint visual images so that the reader has an experience with the author and sees what the author sees and understands.

Read the following statements.

- a. Shopping at a catalogue store isn't as satisfying for us as going to a regular department store.
- b. We don't get to look at the merchandise before buying it.
- c. How shopping at a catalogue store compares with shopping at a department store.
- d. The catalogue salesclerks don't seem to know much about the products they sell.

Sentence c is the topic and a the main idea. Sentences b and d are the details because these are evidences and instances that support the main idea.

PRETEST

TEST I. Reading Comprehension

Directions: Read the paragraph and answer the questions that follow. Shade the letter of your answer in your answer sheet.

We, the sovereign Filipino people, imploring the aid of Almighty God, in order to build a just and humane society and establish a Government that shall embody our ideals and *aspirations*, promote the common good, conserve and develop our *patrimony*, and secure to ourselves and our *posterity* the blessings of independence and democracy under the rule of law and a regime of truth, justice, freedom, love, equality, and peace, do ordain and *promulgate* this Constitution.

1. What is the selection about?
 - A. Filipino people
 - B. Sovereign Filipino people
 - C. Filipino people promulgating the Constitution
 - D. Filipino people imploring the aid of Almighty God
2. Who is referred to by "we" in the paragraph?
 - A. Filipino
 - B. Constitution
 - C. Almighty God
 - D. Filipino people
3. What does the word *patrimony* mean in the paragraph?
 - A. father
 - B. ancestor
 - C. inheritance
 - D. proceedings
4. The paragraph is what part of the Philippine Constitution?
 - A. Preamble
 - B. Article I
 - C. Article II
 - D. Article III
5. Which of the following statements is true according to the paragraph?
 - A. The Filipino people are officially announcing the Constitution.
 - B. The Filipino people are announcing the Constitution.
 - C. The Filipino people are approving the Constitution.
 - D. The Filipino people are rejecting the Constitution.
6. What does the word *aspirations* mean in the paragraph?
 - A. revelations
 - B. objectives
 - C. mission
 - D. vision

7. How are the ideas in the paragraph organized?

- A. The ideas are explained and described.
- B. The ideas are arranged according to problems and solutions.
- C. The ideas are arranged according to similarities and differences.
- D. The ideas are arranged according to cause and effect relationship.

8. What does the word *posterity* mean in the paragraph?

- A. all generations
- B. past generations
- C. end of all generations
- D. succeeding generations

1The President shall be the Commander-in-Chief of all armed forces of the Philippines and whenever it becomes necessary, he may call out such armed forces to prevent or suppress lawless violence, invasion or rebellion. 2In case of invasion or rebellion, when the public safety requires it, he may, for a period not exceeding sixty days, suspend the privilege of the writ of *habeas corpus* or place the Philippines or any part thereof under martial law. 3Within forty-eight hours from the proclamation of martial law or the suspension of the privilege of the writ of *habeas corpus*, the President shall submit a report in person or in writing to the Congress. 4The Congress, voting jointly, by a vote of at least a majority of all its Members in regular or special session, may *revoke* such proclamation or suspension, which revocation shall not be set aside by the President. 5Upon the initiative of the President, the Congress may, in the same manner, extend such proclamation or suspension for a period to be determined by the Congress, if the invasion or rebellion shall persist and public safety requires it.

9. Which of the following statements is not true according to the paragraph?

- A. The President can declare martial whenever he/she feels like declaring it.
- B. The President can declare martial law forever if and only if the public safety is under threat of rebellion or invasion.
- C. The President can declare martial law if and only if the public safety is under threat of rebellion or invasion for a period of 60 days.
- D. The President can declare martial law if and only if the public safety is under threat of rebellion or invasion for a period of two months.

10. What does the word *requires* it mean in sentence 2?

- A. asks for it
- B. wants it
- C. needs it
- D. likes it

11. What is the paragraph about?

- A. It is about the power of the President of the Philippines.
- B. It is about the power and privileges of the President of the Philippines.
- C. It is about the power and responsibilities of the President of the Philippines.
- D. It is about the power, responsibilities, and limitations of the President of the Philippines.

12. Which of the following statements is true according to the paragraph?
- The Congress can declare martial law against the President.
 - President shall submit a report in person or in writing to the Congress.
 - President shall submit a report in person or in writing to the Congress if he/she feels like doing it.
 - The Congress can revoke or extend the declaration of martial law if and only if they really like the President.
13. How are the ideas organized in the paragraph?
- The ideas are explained and described.
 - The ideas are arranged according to problems and solutions.
 - The ideas are arranged according to similarities and differences.
 - The ideas are arranged according to cause and effect relationship.
14. What does the word revoke mean in sentence 4?
- cancel
 - extend
 - approve
 - announce
15. What is the purpose of the paragraph?
- To inform the President of his/her power, responsibilities and limitations.
 - To inform the people of the power, responsibilities and limitations of the President.
 - To inform the President and the Congress of their power, responsibilities and limitations.
 - To inform the people, the President, and the Congress of the provisions in the Constitution as to the power, responsibilities and limitations vested upon the President of the Philippines.

TEST II. IDENTIFICATION OF ERRORS

Directions: Read the sentences. Identify the word that makes the statement ungrammatical. Shade the letter of your answer in your answer sheet.

- No torture, force, violence, threats, intimidation, or any other means which vitiate the free will shall be used against him. No error.
- Secret detention places, solitary, incomunicado, or other similar forms of detention is prohibited.
- Any confession or admission obtained in violation of this or Section 17 hereof shall be inadmissible in evidence against him. No error.

4. The law shall provides^a for penal and civil sanctions for violations of this section as well as compensation^b to the rehabilitation of victims of torture or similar practices^c, and their families. No error.^d
5. The right to^a bail shall not be impaired^b even when the privilege of the writ of *habeas corpus* is suspended. Excessive bail^c shall not be required. No error.^d
6. No person shall be held to^a answer for a criminal offenses^b without due process of law. No error.^d
7. The privilege^a of the writ of *habeas corpus*^b shall not be suspended except in cases of invasion or rebellion^c when the public safety requires it. No error.^d
8. All person^a shall have the right to a speedy^b disposition of their cases before all judicial, quasi-judicial^c, or administrative bodies. No error.^d
9. No person shall be^a compelled to be a witnesses^b against himself. No error.^d
10. No person^a shall be detained souely^b by reason of his political beliefs^c and aspirations. No error.^d

REVIEW ON WORD ANALOGY

The Verbal Analogy tests your stability under pressure by testing your ability to determine the relationship between words and ideas and apply the relationship to the other words.

1. **The Single-Word Approach** – form of analogy which supplies three of the four elements. After determining the relationship between the first pair of words, you must select a word to complete the second pair which will have the same relationship as the first given pair.

Example 1.

BEST is to WORST as HAPPY is to: _____

A. LAUGHTER

B. SAD

C. ENVY

D. CRY

BEST and WORST are antonyms. SAD is the opposite of HAPPY. B is the correct answer.

Example 2.

CADET : ACADEMY ; PATIENT : _____

A. SCHOOL B. AMBULANCE C. HOSPITAL

D. DOCTOR

A CADET stays in the ACADEMY. A PATIENT stays in the HOSPITAL. C is the correct answer.

2. **The Paired-Word Approach** – starts with a pair of related words. Again, you must first determine the relationship between the given words then choose the pair that has the same relationship as the given pair.

Example:

PMA : Fort del Pilar ; _____

A. PAF : AFP

B. PNP : PNPA

C. CCAFP : PMA

D. PNPA : CAMP CASTANEDA

PMA is based in Fort Del Pilar, PNPA is located in Camp Castaneda. D is the correct answer.

IMPORTANT POINTERS IN ANSWERING WORD ANALOGY QUESTIONS

Step 1: Determine the relationship between the kind or type or relationship between the given pair of words. Following are relationship possibilities:

A. Synonym Relationships:

Examples: DISCLOSURE : REVEAL; _____

- A. HIDE : SEEK C. TEACH : LEARN
B. DISCERN : PERCEIVE D. INFORM : REQUEST

To DISCLOSE is to REVEAL : To DISCERN is to PERCEIVE C is the correct answer.

B. Antonym Relationships:

Examples: MALE : FEMALE ; YOUNG : _____
A. OLD B. GIRL C. KID D. BOY

MALE is the opposite of FEMALE while OLD is the opposite of YOUNG. A is the correct answer.

C. Cause and Effect Relationships:

Examples: SMOKING : CANCER; _____
A. Golf : Tee Off C. Anxiety : Ulcer
B. Dancing : Ballroom D. Drinking : Accident

Smoking causes Cancer, Anxiety causes Ulcer. D is the correct answer.

D. Person - Place Relationships:

Examples: WAITER : RESTAURANT; _____
A. Player : Sport C. Driver : Conductor
B. Bellboy : Hotel D. Teacher : PTA

A Waiter works in Restaurant while a Bellboy works in a Hotel. C is the correct answer.

E. Place Relationships:

Examples: LUCENA : QUEZON = LUCENA is the capital town of QUEZON
TOKYO : JAPAN = TOKYO is in JAPAN

F. Activity - Place Relationships:

Examples: MASS : CHURCH; _____
A. Lunch : Mess Hall C. Parade : Cadet
B. Barracks : Open House D. Silent Drill : Grandstand

Cadets attend Mass in the Church, just as cadets have their Lunch in the Mess Hall. A is the correct answer.

G. Worker - Action Relationships:

Examples: PRIEST : MASS; _____
A. Singer : Sing B. Soldier : Tactics
C. Surgeon : Operation D. Professor : Quiz

A Priest officiates a Mass. A Surgeon performs an Operation. A Singer renders a Song not Sing. C is the correct answer.

H. Worker – Tool Relationships:

Examples: BARBER : SCISSORS ; _____

- A. Baker : Bread C. Doctor ; Clinic
B. Carpenter ; Hammer D. Firearms : Policemen

The Barber uses Scissors to trim hair and the Carpenter uses Hammer to build a house. B is the correct answer.

I. Worker – Work/Creation Relationships:

Examples: FRANK SINATRA : MY WAY ; _____

- A. Pacquiao : Gloves C. Kobe Bryant : MVP
B. James Bond : 007 D. Jose Rizal : Noli Me Tangere

Frank Sinatra popularize the song My Way. Jose Rizal immortalized Noli Me Tangere. D is the correct answer.

J. Purpose Relationships:

Examples: NOSE:SMELL ; TONGUE : _____

- A. Chew B. Cough C. Taste D. Twist

NOSE is use to SMELL. Tongue is use to taste. C is the correct answer.

K. Object – Action Relationships:

Examples: READ:BOOK ; SING : _____

- A. Compose B. Song C. Poem D. Lyrics

As you READ a BOOK, you SING a SONG. B is the correct answer.

L. Action – Object Relationships:

Examples: SAME:USERS ; _____

- A. Jail:Pushers B. Love:Heart C. Energy:Conserve D. Serve:Protect

Let us SAVE the USERS and JAIL the PUSHERS of dangerous drugs. A is the correct answer.

M. Part – Whole Relationships:

Examples: STANZA : POEM ; _____

- A. Engine:Car B. Barangay:Family

- C. Love:Heart (noun-noun)
D. Jail:Pusher (verb-noun)

D is the answer.

Step 5. Select the answer that shows the same relationship as the given pair.

Example: SURGEON:OPERATION

- A. TRUCK:DRIVER
B. DRILL:CADET
C. SINGER:SING
D. CLOWN:MAGIC

Analysis 1. Relationship is **Worker-Action**.

Using it in the sentences. The Surgeon performs an operation.

Testing the other pairs for this relationship:

- A. A singer performs a song; not sing
B. Clown performs magic.
C. Cannot form the same relationship
D. Cannot form the same relationship

Analysis 2. Checking the parts of Speech

SURGEON : OPERATION = 1.) Noun : Noun
2.) Person : Action

A. Truck : Driver = 1.) Noun : Noun
2.) Noun : Person

B. Drill : Cadet = 1.) Action : Person

C. Singer : Sing = 1.) Noun : Verb

D. Clown : Magic = 1.) Noun : Noun
2.) Person: Action

Therefore: (D) is the correct answer

REVIEW ON ABSTRACT REASONING

Abstract reasoning use patterns normally falling under four general types.

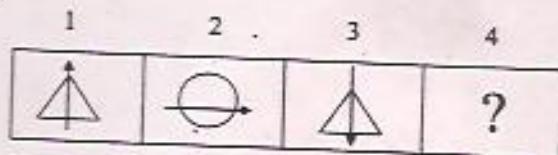
- Figure problems
- Letter Series
- Number Series/Sequence
- Combination of Letter and Number Series

A. Figure Problems – Take note of the following patterns:

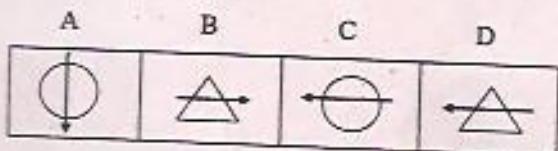
A. Progression Pattern:

- Clockwise or counter clockwise rotation of object/s
- Increasing or decreasing part of the object

Example:



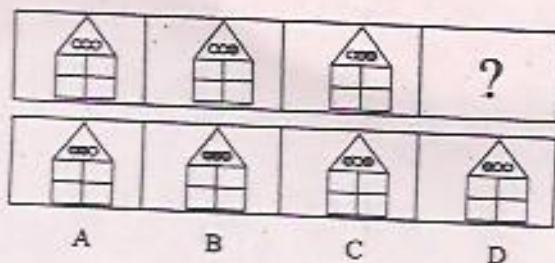
Choose:



Note that the gradual clockwise rotation of the arrow and the figure are alternating between rectangle and circle. The correct figure for box 4 is box C.

B. Progressive changes in the design elements:

Example:



There are two considerations:

- The progressively shading of the circle in the set
 - The progressively u-shading counter clockwise of the rectangles.
- B** is the correct answer

REVIEW ON ABSTRACT REASONING

Abstract reasoning use patterns normally falling under four general types.

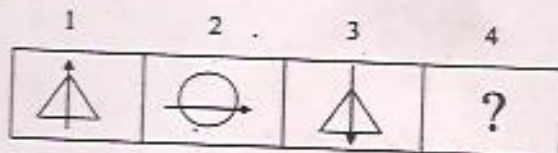
- Figure problems
- Letter Series
- Number Series/Sequence
- Combination of Letter and Number Series

A. Figure Problems – Take note of the following patterns:

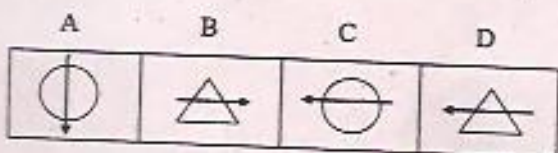
A. Progression Pattern:

1. Clockwise or counter clockwise rotation of object/s
2. Increasing or decreasing part of the object

Example:



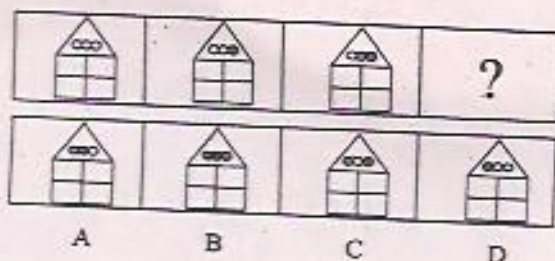
Choose:



Note that the gradual clockwise rotation of the arrow and the figure are alternating between rectangle and circle. The correct figure for box 4 is box C.

B. Progressive changes in the design elements:

Example:

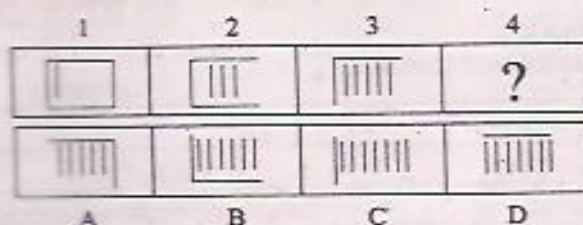


There are two considerations:

- The progressively shading of the circle in the set
- The progressively u-shading counter clockwise of the rectangles.

B is the correct answer

c.) Deletions or additions of parts:



The number of lines in each succeeding figure increases by two and the square is gradually disassembled. D is the correct answer.

B. Letter Series – Take note of the order of the letters in an alphabet series:

Example:

ABCD	EFGH	IJKL	?
------	------	------	---

Forward Order

ZYXW	VUTS	RQPO	?
------	------	------	---

Backward Order

ABZY	CDXW	EFVU	?
------	------	------	---

Combination of Forward/Backward Order (first two and last two letters of the alphabet)

BDF	JLN	PRT	?
-----	-----	-----	---

Forward order, every other letter is skipped

C. Number Series – Take note of the order of the letters in an alphabet series:

1. Increasing value pattern

5	10	15	?
---	----	----	---

 - The series increases by 5, 20 is the answer.

2. Decreasing value pattern

40	30	20	?
----	----	----	---

 - The series decreases by 10, 10 is the answer.

3. Progressing or Retrogressing increase value pattern

1	3	6	10	?
---	---	---	----	---

 - The series increases by 2, 3, 4, 15 is the answer.

1	5	8	10	?
---	---	---	----	---

 - The increase is retrogressing by 1 point starting with 4, 3, 2, 11 is the answer.

D. Combination of Letters and Numbers Pattern

B2 D4 G7 I(?) - The corresponding numerical value of letter G, since A=1, B=2, ...etc. 9 is the answer.

C3 F6 L1 ? - The number is doubled from 3 to 6 to 12 then 24 corresponding to the letters in the alphabet.

T24 is the answer.

A. VOCABULARY LIST

<u>WORD</u> in alphabetical order	<u>SYNONYMS</u> words that have same meaning	<u>ANTONYMS</u> words that have opposite meaning
A		
Abandon	leave, relinquish, forsake	pursue, keep, fulfill
Abbreviate	shorten, reduce, curtail	lengthen, prolong, expand, extent
Abet	aid, promote, assist, uphold	oppose, thwart, obstruct, impede
Abhor	detests, hate, despise, dislike	admire, love, approve, covet
Ability	skill, capacity, power, faculty	weakness, incompetency, inability
Abhorrence	repugnance, loathing	idolatry, adoration
Acquiescing	favoring, agreeing, concurring	opposed, unwilling
Adamant	stubborn, unyielding	relenting, yielding
Adroit	clever, adept,	inept, clumsy
Alert	attentive, keen	lethargic, sluggish
Allegiance	obedience, loyalty, subjection	rebellion, disloyalty, resistance
Ambiguous	vague, uncertain, obscure	obvious, clear, clear
Amiss	wrong, untrue, bad	right, true, compete, good
Animosity	hostility, antagonism	amity, harmony
Arraign	summon, accuse, censure	acquit, discharge, release
Assiduity	industry, diligence	indolence, laziness
Astute	shrewd, ingenious	foolish, immature
Athletic	strong, muscular, vigorous	weak, effeminate, strengthless
Audacious	adventurous, brazen, valiant	apprehensive, timid, cautious
Auspicious	favorable, lucky, propitious	sinister, unfavorable,
Authentic	genuine, reliable, original, real	counterfeit, false, spurious,
Avarice	greed, rapacity, covetousness	unselfish, liberality, prodigality
Avoid	abandon, quit, forsake, shun	approach, address, accost, affect
Axiom	truth, aphorism, maxim	absurdity, nonsense, absurdness

B

Balance	neutralize, poise, weigh, equalize,	tilt, instability, upset
Banal	commonplace, insipid	original, creative
Banish	eject, abandon, expel, exclude	accept, admit, receive, harbor
Bashful	shy, timid, reserved	forward, outgoing, adventurous
Beat	pound, strike, conquer, surpass	defend, shield, surrender, vanquish
Bedlam	confusion, disorder, array, turmoil	order, peace, calm
Bedraggled	untidy, messy, unkempt	neat, clean, well-groomed
Begin	commence, start, initiate, originate	terminate, end, finish, complete

Benediction	blessing, gratitude, commendation	curse, censure, disapproval
Benefactor	friend, contributor, supporter	opponent, foe, oppressor, rival
Bequeath	give, bestow, confer, donate, will	withhold, alienate
Bespeak	provide, forestall, betoken	belie, resign, countermand
Betray	deceive, dupe, delude, dishonor	protect, guard, cherish, preserve
Beware	be cautious, watch out, be wary	to overlook, ignore, neglect
Bizarre	strange, weird, peculiar, odd	ordinary, usual, common
Blame	rebuke, censure, accuse	absolve, exonerate, praise
Bland	mild, plain, lackluster, mediocre	spicy, exciting
Bliss	delight, ecstasy, joy, blessedness	condemnation, suffering, misery
Bondage	oppression, repression, burden	independence, freedom, liberation
Boorish	rude, rustic, crude	polished, urbane, sophistication
Breach	break, violate, contravene	honor, observe, obey
Brevity	intelligent, clever, smart	stupid, dense, dull
Brisk	fast, quick, rapid	slow, soothing
Bulge	swell, lump, protrude	depression, hollow, shrink
Buoyant	floating, happy, optimistic	melancholy, hopeless, sinking, low

C

Calamity	disaster, misfortune, tragedy	blessing, fortune, welfare
Calm	tranquil, quiet, cool, serene	agitate, restless, disturb, upset
Candid	frank, honest, upfront	guarded, scheming, sly
Capacity	size, amount, ability, competence	inability, restriction, narrowness
Carnal	sensual, worldly	spiritual, incorporeal
Catastrophe	disaster, calamity, misfortune	blessing, victory, success
Catholic	wide range, broad, universal	conservative, narrow, parochial
Cause	source, origin, reason, object	effect, result, accomplishment
Celestial	space, outer space	earthly, mortal, terrestrial
Certify	acknowledge, attest, vouch, testify	disprove, misinform, misadvise
Chide	scold, rebuke, reprimand, nag	praise, acclaim, approve
Circumspect	cautious, prudent, careful	reckless, indiscreet, improper
Coherent	sensible, logical, rational, sound	illogical, inconsistent, silly
Comprehensive	complete, broad, wide, general	narrow, restricted, exclusive
Compromise	adjust, involve, cooperation, conciliation	aggravate, perpetuate, disengage
Conceal	hide, disguise, keep secret	reveal, confess, expose
Confidential	secret, private, top secret, restricted	unrestricted, public, open
Contingent	dependent, incidental, uncertain	absolute, positive, unmodified
Contradict	oppose, negative, disprove	maintain, confirm, affirm
Correspondence	fitness, agreement, adaptation	withdrawal, difference, reservation
Counsel	advise, instruction, warning	misguidance, misinstruction, betrayal

Cadetship Test Review Material

Curious	inquisitive, scrutinizing, prying	indifferent, apathetic
Custody	keep, care, guardianship	neglect, abandonment, liberation
Cynical	sarcastic, mocking, scornful	lenient, complaisant, cordial

D

Damp	cool, blunt, wet, discourage	urge, excite, incite
Dapper	neat, smart	scruffy, awkward, untidy
Debatable	doubtful, inestimable, uncertain	certain, sure, unquestionable
Debauch	riot, revel, excess	moderation, abstinence, frugality
Decorum	propriety, dignity, order, good manners	disorder, impropriety, unseemliness
Decry	belittle, discredit	commend, praise
Defective	faulty, imperfect, deficient	correct, complete, satisfactory
Defense	resistance, protection, justification	abandonment, surrender, betrayal
Destitute	poor, penniless, impoverished	solvent, affluent, rich
Desert	wild, wilderness, solitude	pasture, garden, oasis
Dearth	shortage, lack, scarcity	excess, surplus, plenty
Detrimental	injurious, hurtful	beneficial, profitable, augmentative
Devour	eat, consume, swallow	disgorge, vomit
Discernible	visible, manifest, apparent	invisible, inconspicuous, obscure
Discrimination	bias, favoritism, prejudice	dullness, indiscriminate, indiscernment
Dispatch	send, hasten, execute	impede, obstruct
Docile	compliant, amenable, gentle	stubborn, obstinate, self-willed
Dogmatic	doctrinal, assertive, dictatorial	practical, flexible
Dominion	power, authority, tyranny	weakness, submission, inferiority
Dormant	sleeping, slumbering, undeveloped	vigilant, wakeful, energetic
Dreadful	fearful, shocking, frightful	inspiring, encouraging, assuring
Dwindle	waste, diminish, decrease	expand, enlarge, increase

E

Earnest	eager, intent, serious, determined	indifferent, jesting, flippant
Ecstasy	joy, rapture, fervor, delight	dullness, weariness, bore
Edifice	structure, building, tenement	ruin, demolition, reap
Egotism	conceit, self-assertion, self-praise	altruism, selfless, considerateness
Elegant	graceful, lovely, well-formed	deformed, ungraceful, coarse
Eligible	capable, entitled, suitable	ineligible, worthless, undesirable
Elude	escape, avoid, baffle	encounter, confront, defy
Embody	express, systematize, integrate	eliminate, segregate, dissipate
Emphatic	earnest, strong, impressive	mild, cool, ordinary, unimportant
Enamor	captivate, fascinate, charm	repel, disgust, estrange
Enormous	huge, gigantic, vast	average, ordinary, regular

Enmity	discord, hate, hostility	friendship, love, affection
Ensue	follow, accrue, befall	precede, forewarn, threaten
Ephemeral	transient, short-lived, brief	lasting, permanent
Equitable	fair, just, proportionate	unfair, unjust, disproportionate
Erratic	inconsistent, unpredictable, irregular	consistent, calculable, steady
Essential;	inherent, necessary, vital	unnecessary, redundant, superfluous
Esteem	price, regard, respect, admire	disregard, dislike, undervalue
Etiquette	manners, breeding, conventionality	rudeness, boorish
Evidence	manifestation, attraction, testimony	disproof, concealment
Expediency	utility, advantage, interest	detriment, disadvantage
Explicit	detailed, clear, plain	implicit, obscure, implied
Extortionate	hard, close-fitted, rigorous	liberal, bountiful, reasonable
Extreme	terminal, final, remote	initial, primal, moderate

F

Facetious	witty, funny, humorous	heavy, dull, serious
Facile	docile, manageable, weak	sturdy, determined, self-willed
Fag	work, toil, slave	idle, strike, bask
Faint	weak, fatigue, unenergetic	strong, energetic, rigorous
Fallacy	error, blunder, misconception	truth, fact, logic
Falter	hesitate, slip, stammer	run, proceed, persevere
Fastidious	critical, over-nice, over-refine	easy, indulgent, coarse
Fatal	deadly, destructive, lethal	beneficial, wholesome, harmless
Feeble	poor, frail, forceless	strong, active, abundant
Felicitous,	happy, timely, successful	unfortunate, unsuccessful, sad
Fickle	fanciful, changeable, shifting	orderly, uniform, steady
Fidelity	truthfulness, attachment, faithfulness	treachery, disloyalty, untruthfulness
Fiery	ardent, fierce, fervent, hot	cold, icy, indifferent, mild
Flexible	pliant, supple, elastic	tough, rigid, hard, inelastic
Flippant	poor, thin, inane	accurate, flattering, considerate
Flurry	agitate, worry, excite	soothe, compose, calm
Folly	madness, nonsense, misconduct	sense, wisdom, sanity
Forfeit	fine, penalty, damages	premium, remuneration, compensation
Forge	falsify, produce, shape	detect, expose, verify, blast
Frivolous	trifling, silly, trivial, petty	serious, earnest, important
Frugal	sparing, economical, saving	profuse, extravagant, luxurious
Fundamental	important, primary, indispensable	unimportant, secondary, non-essential
Fuss	excitement, worry, fidget	peace, quiet, composure

G

Gallantry	bravery, valor, heroic	cowardice, discourteous
Garble	misrepresent, misquote, mutilate	cite, extract
Gaudy	fine, glittering, showy	rich, simple, handsome
Generous	noble, chivalrous, liberal	mean, selfish, churlish
Genial	warm, cordial, cheering	cold, harsh, deadly
Gentle	polite, well-bred, refined	rude, ill-bred, fierce, savage
Ghastly	deathlike, grim, hideous	blooming, fresh, comely
Giddy	unsteady, dizzy, whirling	stationary, slow, earnest
Gist	essence, substance, main point	redundancy, garb, clothing
Glory	brightness, honor, fame	obscurity, cloud, dishonor
Glut	surplus, redundancy, overstock	scarcity, drainage, scantiness
Grand	large, dignified, imposing	little, inferior, insignificant
Grateful	pleasant, acceptable, thankful	disagreeable, ungrateful, disobliged
Greedy	gluttonous, voracious, hungry	abstinent, indifferent, contented
Grieve	trouble, annoy, distress	ease, console, soothe
Grim	Fierce, ferocious, hideous	attractive, docile, mild

H

Halt	stop, rest, pause	advance, decide, speed
Hasty	speedy, rapid, hurried	slow, leisurely, careful
Hateful	detestable, vile, loathsome	desirable, lovely, enticing
Hazy	foggy, misty, cloudy	clear, crystalline, transparent
Heighten	exalt, increase, intensify	lower, depress, diminish
Hinder	prevent, interrupt, obstruct	accelerate, promote, facilitate
Hypocritical	sanctimonious, smug, smooth	plain-spoken, candid, truthful

I

Idle	unoccupied, empty, inactive	occupied, industrious
Ignominious	shameful, scandal, dishonorable	reputable, credible, honorable
Illustrious	renowned, eminent, distinguished	disgraceful, disreputable, infamous
Imaginative	creative, poetical, inventive	unromantic, unimaginative
Impair	injure, deteriorate, damage	enhance, improve, augment
Impediment	hindrance, obstacle, block	assistance, support, aid
Imperious	arrogant, dictatorial, obligatory	submission, ductile, lenient
Implicate	connect, associate, involve	disconnect, dissociate, acquit
Impressive	affecting, important	insignificant, unimportant
Impudent	impertinent, shameless, rude	bashful, modest
Inadvertence	negligence, oversight, carelessness	attention, correction
Inclination	leaning, tendency, proneness	dislike, inaptness
Incontestable	unquestionable, impregnable	questionable, problematical
Indiscriminate	mixed, confuse, undistinguishing	careful, sorted, select
Indulge	spoil, pamper, foster	disappoint, discipline, contradict

Insatiable	voracious, unappeasable, ravenous	moderate, delicate, dainty
Insolent	haughty, overbearing, abusive	respectful, courteous
Intricate	complicated, involved, entangled	simple, direct, plain
Intuition	instinct, apprehension, insight	learning, information
Invincible	unbeatable, unshakable, supreme	vulnerable, weak, spiritless
Irrepressible	unmanageable, unruly, wild	orderly, governable, controllable

J

Jostle	push, thrust, jolt	lead, escort, attend
Jubilant	joyous, triumphant, festive	mournful, sorrowful, remorseful
Judicious	wise, sensible, prudent	foolish, unwise, imprudent
Just	exact, fair, sound	unfair, unreasonable, unsound
Juvenile	youthful, young, immature	mature, aged, senile

K

Keen	eager, ardent, penetrating	indifferent, blunt, dull
Kind	humane, tender, indulgent	cruel, harsh, unkind
Knot	tie, bond, joint	loosening, unfastening
Knowledge	recognition, comprehension	misunderstanding, misconception

L

Lame	weak, ineffective, crippled	Agile, potent, efficient
Languid	faint, weary, feeble	Strong, healthy, vigorous
Law	rule, regulation, decree	Disorder, rebellion, misrule
Libel	defamation, slander, detraction	Apology, advocacy
Liberal	free, gentle, polished	Greedy, ungenerous, narrow-minded
Liberty	freedom, independence, permission	Slavery, constraint, compulsion
Lift	raise, elevate,	Sink, lower, depress
Likeness	similarity, resemblance, copy	Original, unlikeness
Literal	exact, verbal, real	General, metaphorical, substantial
Logical	close, sound, reasonable	Illogical, irrational, fallacious
Ludicrous	ridiculous, laughable, comic	Serious, sad, mournful
Lunatic	madman, maniac,	Genius, philosopher

M

Manifest	visible, obvious, clear	invisible, dubious, indistinct
Martial	military, brave, warlike	unmilitary, peaceful
Marvel	wonder, admiration, amazement	unconcern, farce, incuriosity
Mask	screen, pretense, cover	expose, detect, open
Meager	small, thin, scanty	stout, abundant, fertile
Mechanical	habitual, automatic, spontaneous	labored, forced, lively
Mediocrity	mean, medium, average	excellence, superiority, brilliance
Melancholy	sad, gloomy, moody	lively, happy, merry
Mellow	mature, ripe	unripe, sober

Cadetship Test Review Material

Mend	repair, restore, rectify	damage, impair, corrupt
Methodical	orderly, systematical, regular	disorderly, unsystematic, irregular
Mingle	mix, blend, associate	separate, avoid, segregate
Minute	microscopic, tiny, exact	enormous, huge, broad
Mischief	damage, hurt, annoyance	benefit, favor, compensation
Mock	ridicule, insult, mimic	salute, respect, admire
Modesty	sobriety, humility, reserve	conceit, arrogance, shameless
Monopoly	exclusiveness, control, cartel	partnership, free-trade, participation
Monotonous	dull, repetitive, boring	varied, changing
Motive	purpose, reason, object	aimless, void
Muddle	fail, waste, derange	order, arrange
Multitude	crowd, massive, large amount	few, less, small
Musty	fusty, stale, sour	fresh, fragrant, aromatic
Mystery	enigma, puzzle, secrecy	public, common, open

N

Narrow	slender, thin, limited	wide, broad, expanded
Natural	intrinsic, essential, normal	abnormal, artificial, fictitious
Necessary	requisite, essential, compulsory	optional, discretionary, unnecessary
Neglect	omit, disregard, overlook	consider, regard, notice
Noble	grand, exalted, worthy	mean, ignore, commonality
Nonsense	absurdity, folly, trash	wisdom, truth, fact
Notion	idea, conception, belief	falsification, misjudgment, misbelieve
Notorious	infamous, dishonorable, tarnished	famous, respectable, honorable
Nuisance	annoyance, pest, trouble	blessing, pleasure, benefit

O

Obesity	fatness, fleshiness, plumpness	lean, thinness, slenderness
Oblige	compel, force, require	request, persuade
Obscure	unclear, vague, difficult to understand	obvious, prominent
Observance	attention, performance, adherence	omission, disregard, disrespect
Odious	hateful, horrible, revolting	delightful, pleasant, acceptable
Officious	bossy, bureaucratic, overbearing	remiss, modest, shy
Ominous	threatening, warning, unpromising	promising, encouraging, auspicious
Oppressive	cruel, domineering, repressive	just, compassionate, liberal
Outlandish	peculiar, strange, weird	fashionable, modish, common
Outrage	anger, indignation, annoyance	self-restraint, self-control
Outset	beginning, start, birth	close, conclusion, termination
Overflow	spill-over, pour-out, flood	deficiency, shortage, deficit
Overwhelm	overpower, engulf, devastate	capitulate, rescue, give-away

P

Pacify	appease, calm, soothe	aggravate, antagonize
Painstaking	meticulous, careful, thorough	careless, negligent, casual
Palatable	tasteful, delicious, appetizing	inedible, tasteless, disgusting
Paltry	worthless, miserable, insignificant	substantial, considerable, honorable
Pang	twinge, spasm, shooting pain	pleasure, enjoyment, delight
Paradox	absurdity, irony, contradiction	logical, possible, sensible
Parsimonious	thrifty, frugal, economical	unsparing, liberal, extravagant
Partake	participate, share, contribute	refrain, abstain, withhold
Passive	inactive, inert, submissive	active, alert, positive
Pathetic	dismal, weak, pitiable	strong, sturdy, tough
Peculiar	odd, strange, abnormal	normal, standard, common
Perceive	recognize, distinguish, see	ignore, disregard, snub
Perpetual	continuous, lasting, continual	temporary, momentary, brief
Perplex	embarrass, confuse, puzzle	enlighten, explain, clarify
Persecute	harass, discriminate, hound	glorify, honor
Perseverance	persistence, insistence, firmness	indecision, wavering, uncertain
Persuade	induce, influence, convince	dissuade, discourage, deter
Petty	little, insignificant, trivial	important, significant, vital
Philanthropy	love of mankind, generosity, charity	selfishness, hatred, egotism
Philosophical	theoretical, sound, wise	realistic, sensible, practical
Picturesque	artistic, pleasing, scenic	unseemingly, ugly, unattractive
Pithy	terse, condensed, concise	complicated, elaborate, difficult
Plodding	slow, industrious, painstaking	indiligent, inattentive, impatient
Plunge	dip, dive, submerge	emerge, soar, raise
Pompous	arrogant, showy, ostentatious	modest, simple, unassuming
Prejudice	discriminate, injustice, unfairness	tolerance, impartiality, fairness
Preposterous	ridiculous, outrageous, laughable	sensible, sane, rational
Prevailing	current, existing, customary	diminishing, unusual, atypical
Prim	formal, prudish, proper	relaxed, comfortable, free
Prodigal	wasteful, reckless, extravagant	cautious, economical, frugal
Prodigious	abnormal, unusual, remarkable	average, standard, typical
Promiscuous	immoral, loose, licentious	reserved, moral, decent
Prompt	punctual, on time, timely	late, behind, sluggish
Prosperity	wealth, affluence, richness	poverty, shortage, destitute
Provision	supply, edibles, food	destitution, starvation, neglect
Prudence	carefulness, caution, good sense	recklessness, carelessness, unruliness

Q

Qualified	fitted, capable, competent	unqualified, incompetent, untrained
Quarrelsome	petulant, argumentative, irritable	amiable, peaceable, meek
Queer	odd, strange, astonishing	ordinary, common
Quash	cancel, nullify, repeal	validate, authenticate, confirm
Quixotic	idealistic, romantic, dreamy	down-to-earth, practical, realistic

R

Radical	drastic, major, essential	minor, partial, conservative
Rage	fury, anger, temper	calm, reason, tranquility
Rank	grade, position, status	disperse, diffuse
Rankle	irritate, annoy, infuriate	calm, compose, quiet
Rattle	shock, disturb, daze	order, arrange
Rebuff	rejection, refusal, snub	recognize, acceptance, welcome
Rebuke	reprimand, censure, admonish	praise, admire, applaud
Reckon	consider, imagine, surmise	concretize, fact
Recommend	suggest, propose, advise	oppose, disagree, oppose
Recompense	reward, compensate, reimburse	damnify, injure
Redeem	retrieve, repurchase, buy back	lose, forfeit, surrender
Regret	apologize, feel sorry	joyful, pleasure
Remiss	careless, negligent, thoughtless	thoughtful, careful, attentive
Remorse	repentance, penitence, regret	self-approval
Renounce	give-up, reject, abandon	accept, own, claim
Repeal	cancel, revoke, retract	enact, ratify, endorse
Repulsive	disgusting, revolting, foul	attractive, alluring, captivating
Resent	repel, resist, dislike	like, submit, condone
Resolute	determined, decided, steadfast	indecisive, unsure, undetermined
Ridicule	scorn, mock, laugh at	admiration, respect, appreciate
Rout	disorder, riot, disturbance	order, organize
Rustic	rural, unpolished, inelegant	modern, updated, recent

S

Sacred	holy, blessed, consecrated	secular, worldly, lay
Sagacity	reasonable, wisdom, prudence	foolishness, stupidity, imprudence
Salutary	Beneficial, useful, helpful	detrimental, harmful, injurious
Satire	sarcasm, irony, ridicule	respect, reverence, esteem
Savage	uncivilized, unpolished, rude	sophisticated, kind, gentle
Scanty	very little, sparse, meager	abundant, plentiful, rich
Scheme	plan, method, system	uplanned, fortuitous, serendipitous
Sedate	sober, demure, anesthsize	agitated, boisterous, active
Seize	grab, take hold; confiscate	restore, bring back, return
Shabby	untidy, ragged, unkempt	elegant, graceful, neat
Sham	pretence, deception, charade	genuine, real, undisputable

Shatter	smash, break, destroy	mend, repair, fix
Sheer	pure, absolute, complete	partial, incomplete, limited
Shuffle	confuse, interchange, jumble	sort, restructure, reorganize
Simultaneous	synchronized, concurrent	separate, apart, intermittent
Snug	close, secure, tight	loose, uncomfortable
Sober	temperate, cool, clear headed	dizzy, lighthearted, giddy
Solitude	loneliness, isolation, seclusion	crowd, group
Speculation	hypothesis, theory, guesswork	fact, reality, certainty
Spite	malice, ill feeling, unkindness	goodwill, kindness, benevolence
Stamp	trample, beat, pound	build, care for
Stern	strict, harsh, firm	easygoing, lenient
Substantial	ample, sizeable, large	small, less

T

Task	work, function, chore	leisure, amusement
Tedious	wearisome, tiresome, uninteresting	interesting, exciting, fascinating
Tiff	quarrel, argument, squabble	agreement, harmony, harmony
Timid	shy, fearful, hesitant	bold, daring, brave
Tranquility	calmness, rest, peace	chaos, turbulence, disorder
Treatise	paper, thesis, article	
Tremendous	great, remarkable, magnificent	awful, dreadful, poor
Tribute	honor, compliment, accolade	dishonor, humiliate, disgrace
Trifle	little, bit, drop	importance, value, worthy
Trivial	unimportant, insignificant, negligible	important, crucial, vital
Twine	twist, bind, unite	separate, disunite, detach

U

Ultimate	final, last, farthest	first, primary, foremost
Unanimous	common, undisputed, agreeing	individual, particular, exclusive
Undeniable	irrefutable, unquestionable	questionable, debatable, doubtful
Unfortunate	unlucky, untoward, ill-fated	fortunate, lucky, opportune
Urgent	imperative, pressing, immediate	trivial, unimportant, petty

V

Vague	Unclear, blurred, uncertain	Clear, definite, specific
Validate	Authenticate, confirm, certify	Cancel, withdraw, revoke
Vast	Huge, enormous, limitless	Small, bounded, moderate
Vehement	Fervent, intense, passionate	Apathetic, subdued, cold
Vengeance	Revenge, retribution retaliation	Pardon, absolution, forgiveness
Veracity	Truthfulness, credibility, sincerity	Unfaithfulness, lie
Vex	Displease, annoy, anger	Pacify, soothe, appease
Vicious	Cruel, brutal, sadistic	Good-natured, friendly, genial
Vulgar	Offensive, bad, improper	Decent, refined, well-mannered

W

Wander	ramble, roam, stroll	Rest, lie, settle
Wanton	motiveless, meaningless	Justifiable, reasonable
Weary	tired, exhausted, fatigue	Refreshed, invigorated, revitalized
Weave	interlace, intertwine, unite	Unpick, untie, untangle
Wicked	evil, bad, sinful	Good, virtuous, upright
Wrath	anger, rage, fury	Tranquil, serene
Wrenched	miserable, humiliated, ruined	Prosperous, happy, honorable

Y

Yearn	desire, crave, longing	Loathe, revolt, recoil
Yell	Shout, scream, roar	Whisper, murmur, speak softly
Yield	Surrender, give-up, succumb	Resist, disallow, protest
Yowl	Howl, squeal, scream	Whisper, murmur, speak softly

Z

Zeal	Ardor, enthusiasm, fervor	Apathy, indifference, coldness
Zenith	Peak, pinnacle, top	Lowest point, bottom, pits
Zest	Keeness, gusto, appetite	Apathy, indifference, distaste

B. HOMONYMS (words that sound alike, but are spelled differently and have different meanings)

A

WORD	MEANING	WORD	MEANING
Advice	counsel	Advise	to give council
Aisle	passage	Isle	island
Ate	devoured	Eight	number
Ale	liquor	Ail	pain
Alley	passage	Ally	friend
Ascent	act of rising	Assent	consent
Axe	tool	Acts	deeds
Aye	yes	Eye	organ of sight

B

WORD	MEANING	WORD	MEANING
Bail	security	Bale	bundle
Bare	naked	Bear	animal, or to carry
Beach	sea shore	Beech	a tree
Bee	insect	Be	to exist
Berth	sleeping place	Birth	being born
Borough	a town	Burrow	hole for rabbits
Break	opening	Brake	part of wheel

C

WORD	MEANING	WORD	MEANING
Cannon	large gun	Canon	a law, a rule
Canvas	cloth	Canvass	to solicit
Cede	to give up	Seed	germ of plant
Celery	a plant	Salary	annual payment
Cession	yielding	Session	meeting
Chews	masticate	Choose	to select

D

WORD	MEANING	WORD	MEANING
Days	plural of day	Daze	to dazzle
Descent	downward	Dissent	disagreement
Device	design	Devise	to contrive
Dew	moisture	Due	owed
Die	to expire	Dye	to color
Doe	female deer	Dough	unbaked bread

E

WORD	MEANING	WORD	MEANING
Earn	be paid	Urn	vase
Elicit	to draw out	Illicit	unlawful
Ether	volatile liquid	Either	one of two

F

WORD	MEANING	WORD	MEANING
Faint	languid	Feint	pretense
Fair	beautiful	Fare	price
Feat	deed	Feet	part of the body
Felloe	rim of wheel	Fellow	companion
Find	to discover	Fined	punished
Flea	insect	Flee	to run away
Foul	unclean	Fowl	a bird

G

WORD	MEANING	WORD	MEANING
Gait	manner of walking	Gate	entrance
Gage	a pledge	Gauge	a measure
Grate	iron frame	Great	large
Guilt	crime	Gilt	gold on surface

H

WORD	MEANING	WORD	MEANING
Hail	to salute	Hale	healthy
Hair	of the head	Hare	a rabbit
Heal	to cure	Heel	part of the foot
Hew	to cut down	Hue	color
Him	that man	Hymn	song
Hoarse	rough voice	Horse	animal
Hole	cavity	Whole	entire

I

WORD	MEANING	WORD	MEANING
Idol	image	Idle	unemployed
Illude	to deceive	Elude	to escape from
Indict	to accuse	indite	to dictate
Inn	tavern	In	within
Intense	extreme	Intents	aims
Instants	moments	Instance	example
Intention	purpose	Intension	straining

J

WORD	MEANING	WORD	MEANING
Jam	preserves	Jamb	side of door
Just	upright	Joust	fight, mock

K

WORD	MEANING	WORD	MEANING
Kernel	seed in nut	Colonel	officer
Khan	a ruler	Can	tin, or to be able to
Knag	knot in wood	Nag	small horse
Knead	work dough	Need	want
Knew	understand	New	not old

L

WORD	MEANING	WORD	MEANING
Lacks	wants, needs	Lax	loose, relax
Lade	to load	Laid	placed, or produced eggs
Lanch	to dart	Launch	a ship
Leach	to filtrate	Leech	a worm
Lead	a metal	Led	guided
Leased	rented	Least	smallest
Lose	to miss a thing	Loose	unbound

M

WORD	MEANING	WORD	MEANING
Made	created	Maid	unmarried woman
Mail	post, letter	Male	masculine
Meddle	interfere	Medal	a token
Mince	to cut	Mints	coining places
Moan	to lament	Mown	to cut
Morning	before noon	Mourning	grieving

N

WORD	MEANING	WORD	MEANING
Nap	short sleep	Knap	noise
Naval	nautical	Navel	center of the abdomen
Nay	no	Neigh	whinny of a horse
Night	darkness	Knight	title or honor
Nit	insect's egg	Knit	weave
None	no one	Nun	holy woman
Noose	slip knot	News	fresh accounts

O

WORD	MEANING	WORD	MEANING
Oar	rowing blade	Ore	mineral
Odd	uneven	Awed	dreaded
Of	belonging	Off	denoting separation
Ordinance	decree, order	Ordinance	weapons
Oracle	prophesy	Auricle	external of the ear
Ought	should	Aught	anything

P

WORD	MEANING	WORD	MEANING
Paced	moved slowly	Paste	glue
Pail	bucket	Pale	whitish
Pair	a couple, two	Pare	to peel
Patients	sick persons	Patience	calmness
Peak	top	Peek	to peep
Pedal	for the feet	Peddle	to sell
Pray	supplicate	Prey	victim
Profit	to gain	Prophet	a foreteller

Q

WORD	MEANING	WORD	MEANING
Quarts	measure	Quartz	rock, crystal
Quay	wharf	Key	lock fastener
Quire	package of paper	Choir	church singer

R

WORD	MEANING	WORD	MEANING
Radish	vegetable	Reddish	somewhat red
Rain	water	Reign	rule
Raiser	one who raises	Razor	shaving blade
Rancor	hate	Ranker	coarser
Rap	to strike	Wrap	to fold
Read	to peruse	Reed	a plant
Reseat	to seat again	Receipt	a acknowledgment
Rest	quiet	Wrest	to twist
Retch	to vomits	Wretch	miserable person
Rice	food	Rise	to ascend
Rood	a measure	Rude	rough
Rye	grain	Wry	crooked

S

WORD	MEANING	WORD	MEANING
Sail	canvass of a ship	Sale	auction
Sane	sound of mind	Seine	fish net

Scene	a view	Seen	viewed
Scent	odor	Sent	caused to go
Sea	ocean	Sec	to perceive
Sex	male or female	Sect	division
Side	edge, margin	Sighed	did sigh
Sooth	truth	Soothe	to allay

T

WORD	MEANING	WORD	MEANING
Tale	story	Tail	the hinder part
Tarrier	a delayer	Terrier	a dog
Taught	instructed	Taut	tight
Thyme	A plant	Time	duration

U

WORD	MEANING	WORD	MEANING
Urn	vase	Earn	to gain by labor
Use	to employ	Ewes	sheep

V

Vale	valley	Veil	to cover
Vane	weathercock	Vein	blood vessel
Veracity	truthfulness	Verocity	greediness
Vice	sin	Vise	a press
Violate	to transgress	Violet	color

W

Wade	to ford	Weighed	balanced
Wail	to moan	Whale	a sea animal
Waive	to relinquish	Wave	a billow
Way	road or manner	Whey	milk
Ween	to Think	Wean	to alienate
Wet	moisture	Whet	to sharpen
Which	which one	Witch	a sorceress
Wig	false hair	Whig	name of party
Wile	deceit, fraud	While	time
Wine	juice off grapes	Whine	plaintive noise
Wood	substance of trees	Would	was willing
Wreak	to inflict	Reek	to emit vapor
Wreath	anything circled	Wreath	to encircle
Write	inscribe, mark	Right	correct, true
Wrung	twisted	Rung	to sound

Y

Yew	a tree	You	person spoken to
Yews	trees	Use	employ
Yolk	yellow of egg	Yoke	burden

BIOLOGY

Directions: Solve the following 15 Questions in 15 minutes

1. The science which focuses on the study of the structure of all cell and its components is:
A. Morphology B. Cytology C. Microbiology D. Heredity
2. A part of biological science that studies the relationship of organisms to their physical environment:
A. Ecology B. Microbiology C. Botany D. Heredity
3. The science which study minute organisms that can be observed only under the microscope:
A. Chemistry B. Microbiology C. Anatomy D. Physiology
4. These basic elements constitute most of the living things:
A. O,H,C,N B. H, Ca, C, Na C. O, K, D, L D. Na, K, M,O
5. Which is the main source of all energy utilized by living things:
A. Food B. Sun C. air D. water
6. Chloroplast is a part of which living thing?
A. green plant B. fungi C. cat D. peacock
7. What structure in the plant cell is not present in animal cell?
A. cell membrane B. ribosomes C. cell wall D. golgi bodies
8. The process where green plants absorb energy from the sun's rays:
A. chlorophyll C. photosynthesis
B. light reactions D. global warming
9. An asexual reproduction by attaching a branch of one variety of plant to the stem or roots of another plant is:
A. grafting C. pollination
B. cloning D. rooting
10. A sex-linked inherited disorder in which blood fails to clot normally:
A. Down's Syndrome C. AIDS
B. hemophilia D. Klinefelter's Syndrome
11. The branch of science which studies structure of all living organisms:
A. Anatomy C. Morphology
B. Histology D. Heredity

12. The human body's first line of defense:
A. skin B. tonsils C. face D. lymph
13. The process of breaking down food into molecules for the body to absorb is called:
A. ingestion B. elimination C. digestion D. synthesis
14. Which of the following is not an accessory organ to digestion:
A. salivary glands C. pituitary gland
B. pancreas D. liver
15. Blood vessels that carry oxygenated blood away from heart to the body parts:
A. arteries B. capillaries C. veins D. lungs

CHEMISTRY

Directions: Solve the following 15 Questions in 15 minutes

- It signifies the simplest ratio of the elements present.
 A. Molecular formula
 B. Etymological formula
 C. Empirical formula
 D. Structural formula
- A representation of a compound is called...
 A. Equation
 B. Symbol
 C. Chemical formula
 D. Letter
- A part of an atom that has the smallest mass is...
 A. Proton
 B. Electron
 C. Neutron
 D. None of the above
- Which is the largest?
 A. Molecule
 B. Atom
 C. Nucleus
 D. Mole
- In order for radioisotopes to be useful for diagnosis, it must possess...
 A. slow elimination from the human body and long half-lives.
 B. slow elimination from the human body and short half-lives.
 C. Quick elimination from the human body and long half-lives.
 D. Quick elimination from the human body and short half-lives.
- The arrangement of elements from left to right in periodic table is based on increasing...
 A. atomic mass
 B. atom
 C. atomic radius
 D. atomic energy
- Along a row in the periodic table, Elements have the same what?
 A. Mass level
 B. Energy level
 C. Atomic radius level
 D. Electro-negativity level
- It is the process that most probably increase the solubility of a gas in liquid.
 A. Solute stirring
 B. Solvent pouring
 C. Solution heating
 D. Pressure increasing
- The reaction where the potential energy is converted to heat.
 A. Entropic reaction
 B. Exothermic reaction
 C. Exotic reaction
 D. Ensomiac reaction
- Which is a positive catalyst?
 A. Speeds up reaction rate
 B. Slows down reaction rate
 C. Stops reaction rate
 D. Supercharges reaction rate

11. The study of the interactions of atoms based on quantum theory is...
- | | |
|--------------------|----------------------|
| A. Quantum Physics | C. Quantum Principle |
| B. Quantum Numbers | D. Quantum Mechanics |
12. The element with an atomic number of 1.
- | | | | |
|---------|-------------|-----------|------------|
| B. Neon | B. Hydrogen | C. Helium | D. Calcium |
|---------|-------------|-----------|------------|
13. It is the reagent that is completely used up in a chemical reaction and so limits the product amount that can be formed.
- | | |
|---------------------|----------------------|
| A. Product Reagent | C. Reactive Reagent |
| B. Limiting Reagent | D. None of the above |
14. What will happen to pressure when the temperature of a gas is lowered?
- | | |
|-------------|----------------------|
| A. increase | C. remains the same |
| B. decrease | D. none of the above |
15. What will happen to the solubility of the salt when the temperature is increased?
- | | |
|-------------|----------------------|
| A. increase | C. remains the same |
| B. decrease | D. none of the above |

PHYSICS

Directions: Solve the following 15 Questions in 15 minutes

1. What is the time it will take to travel 20 meters if the car has a speed of 10 m/s?
A. 1 second B. 4 seconds C. 3 seconds D. 2 seconds
2. The force/forces acting on a vase on a table is...
A. No forces acting
B. The pull of gravity
C. The normal force extended by the table
D. Its weight and the normal force exerted by the table
3. The initial speed of a car speed is 15.0 m/s and it has zero acceleration. What is its speed after 2 seconds?
A. 25 m/s B. 30 m/s C. 15 m/s D. 60 m/s
4. It is the simplest way of expressing very large and very small numbers.
A. Computation expression C. scientific notation
B. Scientific expression D. simplest notation
5. If the force is multiplied by two and the mass is doubled, what will happen to acceleration?
A. Be doubled C. Be four times the original value
B. Remains the same D. Be reduced to 1/4 is original value
6. At the same temperature, it is the heat absorbed by a unit mass of a solid element at its melting point for the conversion of solid into liquid.
A. Heat of Fusion C. Heat of Fission
B. Specific Heat D. Heat of vaporization
7. A truck has a velocity of 100 m/s. It is then accelerated at 10 m/s² for 10 seconds. What is its velocity after 10 seconds?
A. 200 m/s B. 150 m/s C. 300 m/s D. 450 m/s
8. What happens during nuclear fission?
A. Isotopes decay C. Gamma rays are formed
B. two are formed D. Beta rays are formed
9. What will happen to kinetic energy if velocity of an object is doubled?
A. will be doubled C. will be quartered
B. will be quadrupled D. will be decreased by half

10. Mr. Gomez has travelled a distance of 100 km from Manila. He reached his destination in 5 hours. What is his average speed?
A. 10 km/hour B. 50 km/ hour C. 20 km/ hour D. 15 km/hour
11. What is the speed at a given point in a path?
A. acceleration C. instantaneous speed
B. Average speed D. Instantaneous acceleration
12. If three 10 ohm resistors are connected in parallel. What is the total resistance?
A. 30 ohms B. 0.3 ohms C. 0.03 ohms D. 3 ohms
13. It is the cause why steel ship float.
A. mass of water C. buoyant force of water
B. density of water D. reverse effect of gravity
14. What change occurs in an object moving in a circular motion?
A. Velocity C. Speed and velocity
B. Speed D. None of the above
15. What is the approximate speed of light?
A. 3×10^8 m/s B. 2×10^8 m/s C. 4×10^8 m/s D. 5×10^8 m/s

ALGEBRA

Directions: Solve the following 15 Questions in 15 minutes

- $c/d - e/f$ is equal to?
A. $(f-d)/e$ B. $1/(c-f)e$ C. $c/(d-f)$ D. $(ed-d)/f$
- What is the equivalent of $(x^3y^5)^5$?
A. x^8y^{10} B. $x^{10}y^8$ C. $x^{15}y^{25}$ D. $x^{25}y^{15}$
- What is the simplified term for $(a/b + c/d)/e$?
A. $(ad + cb) / bde$ C. $ae/b + ce/d$
B. $(ac + bd) / bde$ D. $(ae/b + ce/d) e$
- $\sqrt{18} + \sqrt{32}$ is equal to ?
A. $5\sqrt{2}$ B. $7\sqrt{2}$ C. $8\sqrt{2}$ D. $6\sqrt{2}$
- What is the value of $a + b$ if $a^3 = 27$ and $b^3 = 8$?
A. 7 B. 8 C. 6 D. 5
- What is the value of a in $5a^2 = 30$?
A. $\sqrt{6}$ B. $\sqrt{5}$ C. $\sqrt{7}$ D. $\sqrt{8}$
- What is the value of b in $a + b = 2c$ and $a - b = 4a$?
A. $c - 2d$ B. $c + 2d$ C. $2c - d$ D. $2c + d$
- Simplification of $6a^2 + 24a + 24$:
A. $6(a + 2)(a + 2)$ C. $6(a - 2)(a - 2)$
B. $6(a + 2)(a - 2)$ D. $6(a - 2)(a + 2)$
- $(x + 2)(x - 2)$ is equal to:
A. $x^2 - 4x + 4$ B. $x^2 + 4$ C. $x^2 + 4x - 4$ D. $x^2 - 4$
- If $x - y = 5$ and $x = 3$, what is $x^2 + y^2$?
A. 14 B. 13 C. 15 D. 12
- Solve the system $3x + 2y = 1$ and $2x + y = 5$
A. 13, -9 B. 13, 9 C. -9, -13 D. 9, -13
- What is the algebraic expression of the statement, the square of the sum of the two times a and b ?
A. $2(a + b)^2$ B. $(a + 2b)^2$ C. $(2a + b)^2$ D. $(2a + 2b)^2$

13. If $x = -2$ and $y = 1$, solve the equation $(3x^2y + 3xy^2)/(x + 15)$

A. 78

B. 68

C. 48

D. 58

14. Simplify: $3\sqrt{8b^3c^6}$:

A. $2b^2c^4$

B. $8b^2c^3$

C. $2bc^2$

D. $2bc^3$

15. $(x^2)(x^2)$ is equal to?

A. x^3

B. x^4

C. x^6

D. x^{23}

PROBLEM SOLVING

Directions: Solve the following 15 Questions in 20 minutes

1. The scale on a military map is 1 inch = 150 miles. Grid Coordinates (GC) 2472 and 2765 are $\frac{8}{5}$ inches apart on this map. What is the actual distance between the two GCs. (Grid Coordinates indicates exact location in a military map).
A. 1275 miles B. 1270 miles C. 1185 miles D. 1265 miles
2. Find the exact time after 4 pm when the minute hand coincides with the hour hand?
A. 4:21.6 B. 4:22.8 C. 4:22.7 D. 4:21.8
3. How much water must be added to 25 liters of a 65% salt solution to reduce it to 25% solution?
A. 42 B. 38 C. 36 D. 40
4. The sum of two numbers is 78. Their difference is 14. Find the two numbers.
A. 36, 42 B. 40, 36 C. 34, 42 D. 32, 46
5. Janitor A can clean the office in 4 hours. Janitor B works faster and can clean the office in 3 hours. How long would it take them to clean the office if they work together?
A. 0.55 hours B. 0.56 hours C. 0.59 hours D. 0.58 hours
6. Jomar starts clearing the lawn at 8:00 am and by 9:20 am he was finished $\frac{4}{5}$ of it. If he continued working at the same rate, at what time will he finish clearing the lawn?
A. 10:36 am B. 9:40 am C. 9:52 am D. 10:02 am
7. A purse contain 6 1 peso coins, 5 25 centavo coins and 8 5 peso coins. If one coin is drawn at random from the purse, what is the probability that the coin drawn is 25 centavo coins.
A. 0.26 B. 0.27 C. 0.3 D. 0.45
8. What is the area of a square that has 15 cm long diagonal?
A. 114.5 cm² B. 113.5 cm² C. 112.5 cm² D. 112.3 cm²
9. How many gallons of acid will be used to make a 250 gallons mixture of acid and water of which 12% is acid?
A. 20 gallons B. 30 gallons C. 50 gallons D. 10 gallons
10. The numbers differ by 13. The sum of the larger and twice the smaller is 82. What is the smaller number?
A. 33 B. 43 C. 23 D. 13

11. If one side of a square is doubled and the other side increased by 7 units, the resulting rectangle will have an area of 120 square units. What is the length of the side of the square.
A. 5 B. 6 C. 7 D. 8
12. The ratio of male to female cadets at the academy was 9:2. If there were 12 females at the classroom, how many male cadets were at the classroom?
A. 24 B. 33 C. 55 D. 54
13. 156 filed their application to take the PMA and PNPA exams. 21 applicants filed both to PMA and PNPA. If 57 will take the PMA, how many applicant will take the PNPA exams
A. 77 B. 88 C. 99 D. 66
14. A walks north while B walks south at the rate of 36 mi/h and 15 mi/h. How far apart are they from each other after 2 minutes.
A. 2.6 miles B. 3.2 miles C. 1.7 miles D. 4.5 miles
15. Cadet A had 3 times as much as book as Cadet B, but after Cadet A gave Cadet B 12 books. They had the same number of books. How many books did Cadet A have at first?
A. 13 B. 12 C. 15 D. 11

TRIGONOMETRY

Directions: Solve the following 15 Questions in 20 minutes

1. If a triangle has one leg of 5 cm and a hypotenuse of 9 cm. What is the other leg?
A. 7.48 cm B. 7.45 cm C. 7.43 cm D. 7.45 cm
2. What is the equivalent of 220° in radians?
A. $11/9 \pi$ radians C. $14/7 \pi$ radians
B. $12/8 \pi$ radians D. $10/6 \pi$ radians
3. A square has a side of 10. What is the diagonal?
A. $25\sqrt{2}$ B. $15\sqrt{2}$ C. $5\sqrt{2}$ D. $10\sqrt{2}$
4. Harry works 5 meters east of city hall and William works north of city hall. The direct distance from Harry's work place to William's work place is 10 meters longer than from city hall. What is the distance from city hall to William's work place?
A. $4\sqrt{4}$ B. $3\sqrt{3}$ C. $5\sqrt{3}$ D. $5\sqrt{5}$
5. An equilateral triangle has a side of 8. What is the altitude?
A. $6\sqrt{3}$ B. $5\sqrt{4}$ C. $4\sqrt{3}$ D. $3\sqrt{6}$
6. What is b if $\log_b 64 = 3$?
A. 5 B. 4 C. 6 D. 7
7. What is the coterminal of 120° ?
A. -240° B. 240° C. -120° D. 160°
8. What is the exact value $\sin 30^\circ$?
A. $1/2$ B. $1/3$ C. $1/4$ D. 2
9. If $\csc \theta = 2$. What is the $\tan \theta$ for $0^\circ < \theta < 60^\circ$?
A. $\sqrt{3}/3$ B. $\sqrt{5}/5$ C. $\sqrt{2}/2$ D. $\sqrt{4}/4$
10. What is tangent of 45° ?
A. 2 B. 1 C. 3 D. 4
11. What is $1/\sqrt{1-\cos^2 \theta}$?
A. $\cos \theta$ B. $\csc \theta$ C. $\sin \theta$ D. $\sec \theta$
12. What is the coordinates of P($3\pi/2$) from (1,0)?
A. (-1, 0) B. (0,-1) C. (1, 0) D. (0, 1)

13. What is the $\tan \theta$ if $\theta = \pi$?

A. 1

B. -1

C. 0

D. 2

14. What is the $\sec^2 \theta - \tan^2 \theta$?

A. 2

B. -1

C. 0

D. 1

15. What $\sin$ of 45° ?

A. $\sqrt{2}/2$

B. $\sqrt{2}$

C. $\sqrt{4}$

D. 2

GEOMETRY

Directions: Solve the following 15 Questions in 15 minutes

- From the figure, what is the value of angle e ?
A. 70° B. 110° C. -110° D. -70°
- What is the angle if its complement is 2 times larger than its supplement?
A. 270° B. 250° C. 280° D. 260°
- What is the area of a square that a 5 cm. long diagonal?
A. 22.5 cm B. 15.2 cm C. 12.5 cm D. 5.22 cm
- A hexagon has how many diagonals?
A. 9 B. 7 C. 18 D. 8
- What is the larger angle if two supplementary angles are in the ratio 1:2?
A. 140° B. 120° C. 150° D. 170°
- The altitude of a rhombus measures 6 cm. Its side is 10 cm and the shorter diagonal is 8 cm. What is the larger diagonal?
A. 15 cm B. 7.5 cm C. 30 cm D. 15.5 cm
- A cylinder has a base radius of 5 cm and height of 7 cm. What is the surface area?
A. $70\pi \text{ cm}^2$ B. $140\pi \text{ cm}^2$ C. $60\pi \text{ cm}^2$ D. $120\pi \text{ cm}^2$
- If a trapezoid has a side 8 cm. and a height of 9 cm and another parallel side of 4 cm, what is the area?
A. 54 cm^2 B. 72 cm^2 C. 66 cm^2 D. 32 cm^2
- A cone has a base radius of 3 cm. and a height of 13 cm, what is the surface area?
A. 154.02 cm^2 B. 134.02 cm^2 C. 164.02 cm^2 D. 174.02 cm^2
- What is an angle greater than 90° but less than 180° ?
A. obtuse angle B. vertical angle C. acute angle D. right angle
- What is the segment of a triangle that bisects an angle of the triangle and ends on the opposite side?
A. base B. altitude C. angle bisector D. median
- Find the length of one side of a regular nonagon that has a perimeter of 981 cm.
A. 109 cm B. 101 cm C. 95 cm D. 99 cm

13. What is a triangle in which two sides are not congruent?
A. scalene B. isosceles C. equilateral D. right
14. A square is inscribed in a circle whose circumference is 25π cm. What is the area of the square?
A. 312.4 cm^2 B. 314.3 cm^2 C. 313.2 cm^2 D. 312.5 cm^2
15. What is the circumference of a circle with radius 9?
A. 2π B. 12π C. 18π D. 108π

READING

Directions: Read each of the following passages carefully and answer the question based on the content of the given paragraphs.

"God, give us men! A time like this demands strong minds, Great heart, true faith and ready hands; Men whom the lust of office does not kill; Men whom the spoils of office cannot buy; Men who posses opinion and will; Men who have honor. . . Men who will not lie; Men who can stand before a demagogue. And damn his treacherous flatteries without winking; Tall men. . . sun-crowned. . . who lived above the fog; In public duty and in private thinking; For while the rabble, win their thumb-worm creeds; Their large professions and their little deeds; Mingle in selfish strife, Lo! Freedom weeps;

Excerpt from the "God Give Us Men" by Josiah Gilbert Holland

1. The lines are addressed to...
 - A. The parents
 - B. The government officials
 - C. The God Almighty
 - D. The readers
 - E. Nobody in particular
2. The essential value of this poem as art is that...
 - A. It appeals to emotions
 - B. It gives information
 - C. It gives spiritual enlightenment
 - D. It conveys amoral
 - E. All of the above
3. The word demagogue as used in the 4th line means...
 - A. Panel
 - B. Dury
 - C. Board of Judges
 - D. Audience
 - E. None of the above
4. The main thought of the prayer is...
 - A. Men of Honor
 - B. The Honor System
 - C. Standard of Virtues
 - D. The hope of the Fatherland
 - E. Courage, Integrity and Loyalty

If a brother has sinned against you, go and speak to him alone, and if he listens to you, you have won your brother. If he does not listen to you, take with you two or three others so that the case may be decided by the evidence of two or three witnesses. If he still refuses to listen to them, inform the assembled church about him. But if he does not listen to the church, then regard him as a pagan or publican.

I say to you: whatever you bind on earth, Heaven will keep bound; and whatever you unbind on earth, Heaven will keep unbound.

In like manner, I say to you: "If on earth two of you are united asking for anything, it will be done for them by my Heavenly Father. For where two or three are gathered in My Name, I am there in their midst"

Then Peter asked Him, "Lord, how many times must I forgive the offenses of my brother? Seven times? Jesus answered, "No, not seven times, but seventy-seven times."

Excerpts from the Holy Scriptures (Luke 17:3)

5. In the 4th paragraph Jesus is teaching about...
 - A. Forgiveness
 - B. Fortitude
 - C. Evidence
 - D. Eternal Life
 - E. All of the above
6. The word "midst" means...
 - A. Moist
 - B. Together
 - C. Between
 - D. Close
 - E. Center
7. When Jesus told Peter that he must forgive his brother seventy-seven times it means...
 - A. Everytime
 - B. Seven times
 - C. Seven times seven
 - D. Seventy-seven times seven
 - E. None of the above
8. A pagan or publican means...
 - A. Non-believer
 - B. Faithful servant
 - C. Atheist
 - D. Preacher
 - E. Politician
9. What do you think would be the best title for this passage?
 - A. The Sower
 - B. One Family
 - C. The Prodigal Son
 - D. Living Together in the Church
 - E. The Parable of Forgiveness

I am the youth of the land. I am told that I am fickle and playful, that I am soft and easy going. I am accused of being naughty and prod and distrustful, of not having the right attitude. And since I do not have the right attitude, my leaders tell me they do not know where this country is headed for, that they wonder when it is left to me as my heritage, when it is willed to me as my own.

I maybe young, I may be inexperienced- but I am not blind. I can see the future with certainty that I alone can feel, for I feel it in my blood. And I see my leaders, to have built a towering mansion of state on sand. And the sand shifts and towering mansion feel. And my soul is black with resentment, and I curse them with hatred that only youth can possess, as I stare all the bleak sky swear; may your memory be damned by my destiny!

Give me leaders who shall devote themselves no longer to a privileged minority but to the cause of the underprivileged majority. Give me leaders who shall lead lives fraught with hardships and sacrifices: who shall demand of themselves before they demand of me. Give me leaders who shall have successors tempered in the crucible of merit.

Give me leaders, and theirs is my mind to mould. Give me leaders, and theirs is my blood to shed. Give me leaders, and theirs is my will to command. Give me leaders, and theirs is my destiny to shape. Give me leaders and I shall follow them to end of the earth.

Excerpt from The Tyranny of False Virtues by: An unknown author

10. The author's tone is that of...
- A. Jubilation
 - B. Seething Rage
 - C. Hopefulness
 - D. Resignation
 - E. Excitement
11. The 4th paragraph implies the speakers'...
- A. Revolution
 - B. People's Power
 - C. Aim for a drastic change
 - D. Desire to change himself
 - E. Desire to change the world
12. What theme does the selection has?
- A. Youth always suffers the leader's blunders
 - B. Youth is the hope of the fatherland
 - C. Youth creates the problems of society
 - D. Leaders are visionless and fault-finders
 - E. All of the above
13. The lines are addressed to...
- A. Clergy
 - B. Parents
 - C. Teacher
 - D. The Youth
 - E. The Leaders
14. Who is talking in the selection?
- A. Clergy
 - B. Parents
 - C. Teacher
 - D. The Youth
 - E. The Leaders

When I was a kid, I used to walk on the street, then stop by a shop window. With my head still facing down the street, I'd say to myself, I can see that red blouse in the window. I can also see that pair of black shoes.

Once, during my first week as NBA basketball player, I ran across the street against the light. Out of the corner of my eye, I suddenly saw a car speeding right at me, and I had just enough time to jump. I came out of it with a bruised hip and wrist, but at least I didn't get run over.

Practicing peripheral vision also led me to the discovery that I could look one way on the basketball court and see things other players couldn't. That made it easier for me to pass or move. This way of seeing game naturally led to the idea of its being a sort of radar in your life or your profession, constantly scanning all the possible implications for any particular action. My eyes have become a metaphor for a frame of mind.

On Peripheral Vision by Senator Bill Bradley

15. What is the meaning of the phrase "My eyes have become a metaphor for a frame of mind?"
- A. Bradley is always one step ahead as compared to other players.
 - B. Bradley has a higher basketball intelligence quotient than the other players.
 - C. It is a metaphor indicating that the eye is the window of the soul
 - D. Bradley is able to understand things in a wider perspective
 - E. None of the above
16. How did Bradley improve his peripheral vision?
- A. Playing basketball
 - B. Crossing the street against the light
 - C. Practicing at a window shop when a young boy
 - D. Campaigning as a senator candidate
 - E. None of the above
17. In what way did Bradley's excellent peripheral vision affect his life?
- A. It made one of the greatest NBA players of all time.
 - B. It helped him become a senator.
 - C. It made him scan all possible implications of a particular action
 - D. It helped him improve tremendously his personal life and profession
 - E. All of the above.
18. In this article, Bradley is teaching about his...
- A. Boyhood
 - B. NBA career
 - C. Member of the US senate
 - D. Peripheral vision
 - E. None of the above

You are the salt of the earth. But if salt has lost its taste, how can it be made salty again? It has become useless. It can only be thrown away and people will trample on it.

You are the light of the world. A city built on a hill cannot be hidden. No one lights a lamp and covers it; instead he puts it on a lamp stand, where it gives light to everyone in the house. In the same way your light must shine before others, so that they will see the good things you do and praise your Father in Heaven.

Excerpts from the Holy Bible (MK 4:21; LK 1:34; 8:16; 11:33)

19. According to the passage, what is the use of light?
 - A. Defense against evil.
 - B. Use as light in a dark house.
 - C. To serve as inspiration to the followers of Christ.
 - D. To give comfort to the society.
 - E. None of the above.
20. What is the meaning of the phrase "You are the salt of the earth?"
 - A. You are the preserver of foods on earth
 - B. You are important member of the society
 - C. You must always remain faithful to the words of God
 - D. You represent the shortcomings of the society
 - E. None of the above
21. What must you do to become a light of the world?
 - A. Do not be afraid of the dark
 - B. Always look attractive to other people
 - C. Be a good example of faith to others
 - D. Be a famous preacher of the Church
 - E. None of the above
22. What is the most relevant of the message in modern time?
 - A. Generosity and almsgiving
 - B. Respect for others
 - C. Emulate the lives of the Apostles of Christ
 - D. Strive hard to live in crisis
 - E. None of the above

Sa gitna ng digmaan, dalawang magkaibigang sundalo ang nagkahiwalay ng sabihin ng kanilang Kapitan na uurong sila sa laban. Sila ay sina Al at Fred. Wala silang kalaban-laban sa dami ng kaaway. Malalagas sila kung hindi uurong.

Pagdating nila sa sa kanilang kampo, natuklasan ni Al na wala si Fred. Nakadama ng pag-salala siya para sa kaibigan. May usapan pa naman sila bago umalis sa kanilang bayan na walang iwanan kahit anong mangyari. Agad siyang lumapit sa kanilang Kapitan para magpaalam.

"Babalikan ko po si Fred, Sir. Baka kailangan niya ng tulong ko sa isang taong maaring patay na."

"Hindi maaari", sabi ng Kapitan, "Ayaw kong ipakipagsapalaran ang buhay mo sa isang taong maaaring patay na."

Alam ni Al mapanganib ang magbalik sa lugar ng labanan kaya hindi pumayag ang Kapitan na bumalik siya. Nang gumabi ay tumakas siya sa kanilang kampo. Gusto niyang balikan ang kanyang kaibigan at tuparin ang kanilang pangako sa isat-isa na walang iwanan. Kailangang makita niya si Fred. Dahil hindi siya matatahimik hanggat hindi niya ito nakikita, patay man o buhay.

Sugatan si Al ng magbalik sa kanilang kampo at bakas ang hiras na sinuong niya. Galit na kinausap siya ng Kapitan.

"Sinabi ko na sa iyo na patay na ang kaibigan mo. Ngayon, malamang na mamamatay ka na rin dahil sa mga sugat mo. Sinasayang mo lang ang buhay mo sa isang walang halagang bagay." "Sir, buhay pa ang aking kaibigan ng abutan ko siya bago siya nalagutan ng hininga sa kandungan ko, nagawa pa niyang ibulong sa akin, utol, alam kong babalikan mo ako"

Parang pinitpit sa luya sa hiya ang Kapitan. Agad niyang pinalapatan ng lunas ang mga sugat ni Al. Hindi siya makatulog ng gabing iyon. Sinusurot siya ng kanyang budhi. Naisip din niya ang kaibigan ng madistino siya sa Mindanao. Tulad ng kaibigan ni Al, hindi rin ito nakabalik ng kampo ng sila ay inambush. At hindi niya ito binalikan para hanapin, patay man o buhay.

23. Ang magandang pamagat sa talatang ito ay...

- A. Walang Iwanan
- B. Patay man O Buhay
- C. Ang Magkaibigan Al at Fred
- D. Ang Pinakadakilang Kaibigan
- E. Pagkakaibigan sa gitna ng digmaan

24. Alin sa mga sumusunod na salita ang kasalungat na kahulugan ng salitang sinusurot..

- A. binabagabag
- B. sinsaktan
- C. tinatanong
- D. pinatitiwasay
- E. pinapahirapan

25. Sa dakong huli ng sanaysay, ipinapakitang ...

- A. Malupit ang digmaan
- B. Mahirap ang sundalo
- C. Magulo ang Mindanao
- D. Mahirap maging Pilipino
- E. ABCD

26. Sa unang talata, nangangahulugan ang malalagas na dahon..

- A. mapipitas
- B. mawawala
- C. mauubos
- D. mawawala
- E. malulusaw

PARAGRAPH ORGANIZATION

Direction: *Arrange the following sentences presented in scrambled order to form a well-organized paragraph.*

1. I. In the past four decades, it has increased by about 0.2 to 0.3 °C, which is way beyond what natural climatic cycles would explain.
II. The mean global surface temperature has increased by about 0.3 to 0.6 °C since the late 19th Century.
III. Climate change is a phenomenon which may not be observed by everybody.
IV. It began with the Industrial Revolution two centuries ago and accelerated over the last 40 years.
V. This episode of "global warming" is due to human activity.
A. I-II-III-IV-V
B. I-IV-III-II-V
C. III-II-I-V-IV
D. II-IV-I-III-V
2. I. Each one of us should strive hard to be an instrument of peace.
II. No man, no nation can do it by itself.
III. Our leaders can not bring about peace and prosperity alone.
IV. If we have peace within ourselves, we can establish a peaceful and prosperous family, community, and nation.
V. We can never be islands.
A. V-III-IV-II-I
B. IV-II-V-III-I
C. III-I-V-II-IV
D. III-II-V-I-IV
3. I. Critical thinking makes sense out of information using more objective skills, such as analyzing and evaluating information using established, external criteria.
II. The new knowledge may also be analyzing using critical skills so the relationship between critical and creative thinking is dynamic.
III. Jonassen (1996) states that creative thinking requires going beyond accepted knowledge to generate new knowledge.
IV. Creative thinking, on the other hand, uses more personal and subjective skill in the creation of new knowledge to generate new knowledge.
V. Many creative thinking skills are closely tied to critical thinking skills.
A. ID-V-I-III-II
B. III-V-I-II-IV
C. I-III-IV-V-II
D. IV-I-II-V-III
4. I. I do not stand before you to whitewash my errors.
II. But in all justice, in all fairness, in all deterrence to truth, do not hold me entirely accountable for my Failings.
III. I am the youth of the land.
IV. I admit that the accusations hurled against me are in great part true.
A. III-I-IV-II
B. I-II-III-IV
C. II-III-I-IV
D. I-III-IV-II

5. I. Once it is signed, it must be ratified by the signatories.
II. Then it becomes law.
III. This means that the treaty must be accepted by the country's own parliament or equivalent legislative body.
IV. Covenant, convention or treaty, unlike a declaration, has the force of law.
A. II-III-IV-I C. IV-I-III-II
B. IV-III-I-II D. I-III-IV-II
6. I. So serious did it become that the authorities took a drastic step in imprisoning Dr. Jose Rizal who was regarded as symbol of the revolution.
II. He fell before a firing squad on the morning of December 30, 1986.
III. He was given a trial but fate was a forgone conclusion.
IV. The progress of battle generally favored the Spaniards but the revolution continued.
A. IV-II-I-III C. I-III-IV-II
B. IV-III-II-I D. III-IV-II-I
7. I. Ayon sa saligang batas, maraming mga katangiang dapat taglayin ang sinumang nagnanais na tumakbong Pangulo ng bansa.
II. Isa pang mahalagang katangian ay kinakailangang apat-na-pung taon man lang siya sa araw ng halalan.
III. Ikalawa, nararapat din na siya ay registradong botante at marunong bumasa at sumulat.
IV. Isa sa katangiang ito ay nararapat isa siyang katutubong ipinanganak na mamayang Pilipino.
V. At ang huli, ay nararapat na siya ay residente ng Pilipinas sa loob ng sampung taon bago dumating ang halalan.
A. I-II-III-IV-V C. I-III-IV-II-V
B. I-IV-III-II-V D. V-II-I-III-IV
8. I. More than just the advancement of the economy, public order means the advancement of our quality of life.
II. When peace and order reign, industry and agriculture move faster forward.
III. Public order has always been the first pre-condition for progress.
IV. The country becomes more attractive to investors and tourist and our people can pursue their work and leisure without interruption.
A. I-III-IV-II C. II-IV-I-III
B. III-II-IV-I D. III-IV-II-I
9. I. It is not a contract, or property right protected by the due process of the constitution.
II. The right to bear arms as a mere statutory privilege is not a constitutional right.
III. Consequently, a Permit To Carry Firearms Outside Residences.(PTCFOR), just like ordinary license in other regulated fields, maybe revoked anytime.
IV. Under Philippine Law, the possession of firearms require a license from the state and cannot be considered an inalienable or absolute right.
A. II-III-IV-I C. I-IV-II-III
B. II-IV-I-III D. III-IV-II-I

10. I. But it is not easy to see why the highest group would want to do something about it.
II. The recent bombings in Mindanao, they say, were the handwork of higher group, the idea being is to put blame on the MILF, and to sabotage the peace talks.
III. That's what the law enforcement agencies say.
IV. Induce, they say, the bombings were just part of the grand plan to do away with MURAD.
V. It is easy to see why most people in Mindanao would not want to see the peace talk between the government and the MILF succeed.
A. I-II-III-V-IV C. III-I-V-IV-II
B. II-III-I-V-IV D. IV-III-I-II-V
11. I. It can be the humblest also, if we regard it – as we must – in the light of the basic democratic principles.
II. This simply means that all of us in public office are but servants of the people.
III. The office of the President is the highest in the land.
IV. The first of these principles is the declaration of the Constitution that “sovereignty resides in the people and all government authority emanates from them”.
A. IV-III-I-II C. III-I-IV-II
B. II-III-I-IV D. ID-I-II-III
12. I. If the man is wearing gloves, it is no longer necessary for him to keep the lady waiting awkwardly while he removes his gloves.
II. A good handshake is elbow level, firm and brief.
III. He can shake hands even with his gloves on and he need not apologize for it.
IV. Likewise, a man does not offer to shake hands with a woman unless she makes the move first.
A. IV-II-III-I C. I-IV-III-II
B. II-IV-I-III D. III-II-I-IV
13. I. On examination day, the applicant proceeds directly to the examination center that he or she has selected, undergoes Limited Physical Examination, and receives instructions in the morning prior to the actual examinations in the afternoon.
II. They will then receive a notice to report on dates designated to the Armed Forces of the Philippines Medical Center (formerly V. Luna Hospital) in Quezon City to undergo thorough medical, dental, and neuropsychiatric examinations.
III. Processing of applicants for cadetship begin from the filling-up and submission of Cadetship Application Forms to the Office of the Cadet Admissions, PMA.
IV. Successful examinees will be notified by telegram and their names published in a national daily.
A. IV-III-I-II C. III-IV-I-II
B. I-III-IV-II D. III-I-IV-II
14. I. To fully develop the personality of the cadets, they have social gatherings and affairs such as the cadet hops (dances).
II. Aside from those activities sponsored by the Hop Committee, cadets may also attend dances and private parties outside the Academy.
III. Here they have the opportunity to interact with civilians.
IV. Cadet life is not composed of academic and military training exclusively.

- | | |
|----------------|----------------|
| A. IV-I-III-II | C. II-IV-I-III |
| B. III-IV-I-II | D. I-II-IV-III |

15. I. If you neither know the enemy nor yourself, you will succumb in every battle.
 II. If you know the enemy and know yourself, you need not fear the result of a hundred battles.
 III. Such is the art of warfare according to SUN TZU.
 IV. If you know yourself but not the enemy, for every victory gained you will suffer a defeat.

A. IV-I-III-II	C. II-III-IV-I
B. III-II-IV-I	D. II-IV-I-III
16. I. Crystals that are partly melted cling together to form snowflakes that fall to the ground.
 II. These icy particles become snow crystals.
 III. There are three forms of water: 1) ice-which is the solid form; 2) water- which is the liquid form, and; 3) water vapor – which is the gaseous form.
 IV. Water vapor clinging to little pieces of dust in the air is turned into ice when the temperature falls below freezing.

A. III-IV-II-I	C. IV-II-III-I
B. I-III-IV-II	D. I-IV-III-II
17. I. This means that they and their families are not subject to the criminal or civil laws of the host state.
 II. It is because diplomats are immune to the jurisdiction of the nation where they are living.
 III. However, diplomats maybe expelled from the country should they be guilty of breaking a law.
 IV. Diplomats are not arrested when they break a law in other foreign country.

A. IV-III-II-I	C. III-II-IV-I
B. IV-II-I-III	D. I-III-IV-II
18. I. It will have nine, in place of the former three, commissioners.
 II. This repudiates the outmoded two-party system that had prevented new political groupings from participating in the work of the government.
 III. A new and important power of the Commission is to accredit third parties and afford them its protection.
 IV. The Commissioner on Election enjoys expanded powers under the new Constitution.

A. III-II-I-IV	C. III-I-II-IV
B. I-II-III-IV	D. II-I-III-IV
19. I. Normally, the final year at the Academy provides the Cadet with the opportunity to experience organizational leadership as cadet officers who are expected to lead the Cadet Corps in all areas of development.
 II. This gives them the opportunity to simulate how a real officer leads and behave.
 III. It is at this stage that cadets experience promotion to cadet officers and learn to lead a platoon, a company, a battalion, and a brigade.
 IV. The final year is designed to resemble the autonomy and accountability of officer leadership.

A. I-IV-III-II	C. IV-III-I-II
B. III-IV-II-I	D. I-III-IV-II

20. I. Not only is the citizen required to be law-abiding under the new constitution.
II. Finally, the New Constitution makes it an obligation of every qualified citizen to register and vote.
III. He is required to actively involve himself in national development.
IV. In addition, he has to engage in gainful work and exercise his rights and responsibility.
A. IV-III-I-II C. III-I-IV-II
B. I-II-IV-III D. IV-II-III-I
21. I. For the first time since its establishment in 1901, there will be seven (7) vacancies as Seven Supreme Court Justices will retire.
II. Good appointees will mean sound, fair, and just decisions that will prove beneficial to the Filipinos and the generations to come.
III. The year 2009 is extraordinarily special for the Supreme Court and the Filipino people.
IV. Filling-up the vacancies is a challenge and opportunity as the Supreme Court will judge important constitutional issues and competing political agendas as the 2010 presidential election fast approaches.
A. III-I-IV-II C. IV-III-I-II
B. I-II-IV-III D. I-III-IV-II
22. I. Many Filipinos say that she was behind Ferdinand's successful regime.
II. Even though she spent too much money, Imelda was loved by many Filipinos.
III. Imelda Marcos is the former first lady of the Philippines.
IV. She was married to Ferdinand Marcos who was the president of the Philippines.
A. III-IV-I-II C. II-IV-I-III
B. I-IV-III-II D. IV-I-II-III
23. I. After some period of time, writing then was used to note down literature.
II. Upon the arrival of the English in India, most of the people were already able to read and write.
III. In the present time, artifacts are found as evidence of early Indian writing.
IV. The Indian was thought of the English Alphabet.
A. IV-II-I-III C. I-III-II-IV
B. II-III-IV-I D. II-IV-I-III
24. I. A uniform is not as ordinary as a piece of attire worn anytime as one may wish.
II. It is a distinctive quality, a hallmark that sets a soldier apart from the civilians he serves and protects.
III. The military uniform is a universal symbol of service, dedication, dignity and honor.
IV. Its essence conveys a more profound importance as it represents the institution to which he belong to, rather than to his person.
A. II-III-I-IV C. IV-II-III-I
B. III-II-I-IV D. I-III-IV-II
25. I. Gates is also a part owner of Macintosh.
II. Bill Gates is the richest man in the world today.
III. He is the owner of Microsoft which is the number one brand of operating system.
IV. Recently, he has acquired Yahoo which is the reason of his misfortune.
A. II-III-I-IV C. IV-I-III-II
B. III-IV-I-II D. I-II-IV-III

CORRECT USAGE

Directions: Choose the word or group of words which you think will best complete the following phrases or sentences given below.

- My Chief of Police did not agree _____ my suggestion for improving the crime solution efficiency.
A. with B. to C. of D. in
- He is an _____ of the Maritime Academy of Asia and the Pacific.
A. alumnus B. alumni C. alumnae D. alumna
- One third of the female applicants _____ not qualified to take the tests.
A. are B. is C. will D. do
- Have the graduation _____ already?
A. begun B. begin C. began D. none of the above
- News about the fuel price increase _____ some changes in our motorists.
A. do B. did C. done D. none of the above
- "The bullet that will kill me _____ not yet cast."
A. are B. will C. was D. is
- "Just call out my name and you know _____ I am."
A. wherever B. whenever C. whatever D. however
- The star player _____ a three-point shot but was charged with a changing foul.
A. score B. scored C. scorded D. none of the above
- Because of fatigue, the coach unconsciously _____ himself on the bench.
A. laid B. lay C. layed D. lain
- I was _____ by the shouting of the fans.
A. shaked B. shaken C. shook D. shooked.
- Neither the boys _____ the girls brought their food.
A. nor B. or C. and D. with
- You only got _____ you deserved.
A. that B. which C. what D. when
- It is essential that you _____ your mistake first.
A. will admit B. admits C. admit D. must admit

14. "It only _____ good men to do nothing for evil to triumph."
A. taken B. takes C. took D. take
15. Truth is _____ to surgery, it pains but it cures.
A. likes B. likely C. like D. likened
16. You must have been _____ soccer too long?
A. played B. plays C. playing D. play
17. Sharon, together with her daughters, _____ attend the senate hearing.
A. his B. will be C. will D. have
18. The investigator will _____ to the crime scene.
A. come B. go C. coming D. went
19. How does the charter change initiative _____ you?
A. affect B. affects C. affected you D. effect
20. "Go tell all _____ that in this camp, men know how to die."
A. passers-by B. by passers C. passing by D. by- passed
21. The pushers will be _____ tomorrow.
A. hanged B. hung C. hang D. hunged
22. Badminton and tennis _____ his favorite sports.
A. are among B. are one C. is among D. none of the above
23. The Philippines and the U.S. _____ going to lead the campaign against terrorism.
A. is B. were C. are D. was
24. How does the SWS survey _____ the standing of the candidates for President?
A. affects B. effect C. affect D. effects

IDENTIFICATION OF ERRORS

Directions: Choose the undersigned word or group of words that is incorrect. If there is no error, choose letter E.

- Every examinee who takes the test thinks they are unlikely to pass because of time limitation.
B C D
No error.
E
- Anybody caught cheating in the entrance examination will be brought outside of the campus.
A B C D
No error.
E
- The two kidnappers were just about to divide the ransom money among themselves when the operatives raided their hide-out. No error.
A B C D E
- Neither the guest nor their sponsor like the program. No error.
A B C D E
- The Police Community Relations programs brings the police closer to the people. No error.
A B C D E
- The people give varied reactions to the President's State of the Nation Address. No error.
A B C D E
- The wounded rebel lay on the grass when the troops found him. No error.
A B C D E
- Admittance to the different service academics is becoming difficult because of stiff competition.
A B C D
No error.
E
- There is fewer milk in the glass than there is in the other glass. No error.
A B C D E
- The ship captain not the crew were doing most of the work. No error.
A B C D E

11. Inside the court, the fiscal and the lawyer hand me the cartographic sketches of the suspects.
A B C D

No error.
E

12. Don't judge a person by its appearance and look. No error.
A B C D E

13. Why don't you wear the slippers that you bought? Don't you like it? No error.
A B C D E

14. My father sent me a card on my graduation. I treasured them. No error.
A B C D E

15. Physics and Geometry has been my favorite subjects in high school. No error.
A B C D E

16. Neither the foods nor the drinks is delivered. No error.
A B C D E

17. The police not the witnesses know the answer to the judge's question. No error.
A B C D E

18. Her lover and friend want to talk with you. No error.
A B C D E

19. Our country need two things: Honest public officials and intelligent citizenry. No error.
A B C D E

20. Brother Miguel will be facilitating a one-week holy retreat for the graduating class. No error.
A B C D E

21. Kailangan ng bawat Pilipino hindi lamang sipag at tiyaga, kundi pagpapakasakit upang
A B C
tayo'y magtagumpay. Walang mali.
D E

22. Ang magkaibigan ay nagmamahalan: At sa kagipitan ay nagtutulungan. Walang mali.
A B C D E

23. Gusto mo bang maging alipin sa ibang bansa kung kaya mo naman mabuhay ng marangal sa
A B C D
sariling lupa? Walang mali.
E

24. Nasaan ka ng oras na nangyayari ang krimen. Walang mali.

A B C D E

25. Si Andres Bonifacio ang Pambansang bayani ng Pilipinas. Walang mali.

A B C D E

WORD ANALOGY

Directions: Select the letter that best expresses a relationship similar to that expressed in the given pair.

A. SINGLE - WORD APPROACH

- | | | |
|--|---|------------------|
| 1. Reading : Mind :: Exercise | B. Singer | D. Author |
| A. Soul | | |
| B. Health | | |
| C. Body | | |
| D. Physical | | |
| 2. Morning : Noon :: Dusk | 11. Soldiers : Barracks :: Bees | |
| A. Dawn | A. Nest | C. Honey |
| B. Night | B. Trees | D. Hive |
| C. Midnight | | |
| D. Midmorning | | |
| 3. Train : Station :: Ship | 12. Waiter : Restaurant :: Bellboy | |
| A. Terminal | A. Count C. Hotel | |
| B. Tracks | B. Chura D. Parlor | |
| C. Cabin | | |
| D. Harbor | | |
| 4. Fashion Designer : Cloths :: Engineer | 13. Coward : Warrior :: Traitor | |
| A. Cars | A. Hero | C. Soldier |
| B. Bridge | B. Model | D. Pilot |
| C. Airplane | | |
| D. School | | |
| 5. CEO : Company :: Governor | 14. Irreverent : Pieces :: Repentant | |
| A. Province | A. Sinner | C. Catholic |
| B. Town | B. Holy | D. Faithful |
| C. Capitol | | |
| D. District | | |
| 6. Cook : Stew :: Baker | 15. Electric Fan : Aircon :: Sundial | |
| A. Biscuit | A. Noon | C. Clock |
| B. Drinks | B. Telephone | D. Telescope |
| C. Soup | | |
| D. Bread | | |
| 7. A soldier : Platoon :: Bulls | 16. Skating : Rink :: Basketball | |
| A. Flock | A. Ring | C. Arena |
| B. Matadors | B. Court | D. Coliseum |
| C. Herd | | |
| D. Horns | | |
| 8. Actor : Costume :: Athlete | 17. TV : Electricity :: Flashlight | |
| A. Shoes | A. Bulb | C. Wire |
| B. Jersey | B. Volts | D. Battery |
| C. Bike | | |
| D. Balls | | |
| 9. Camera : Photographer :: Paint Brush | 18. Abbreviation : Extension :: Abridgement | |
| A. Painter | A. Expansion | C. Curtailment |
| B. Engineer | B. Contraction | D. Consideration |
| C. Plumber | | |
| D. Waiter | | |
| 10. Masterpiece : Painter : Bestseller | 19. Transient : Permanent :: Ephemeral | |
| A. Actor | A. Eternal | C. Temporary |
| C. Dancer | B. Short-lived | D. Long-lasting |

20. Philippines : Carabao :: Australia

- A. Panda C. Tiger
B. Koala D. Snake

21. Temperature : Thermometer :: Time

- A. Clock C. Timer
B. Stop D. Umpire

22. Food : Drink :: Hunger

- A. Thirst C. Gluttony
B. Fasting D. Meals

23. Full : Empty :: White

- A. Hue C. Color
B. Black D. Tint

24. Reprove : Approve :: Reprehend

- A. Commend C. Comprehend
B. Apprehend D. Criticize

25. Shirt : Buttons :: Shoe

- A. Shoelace C. Sacks
B. Sale D. Feet

B. PAIRED - WORD APPROACH

1. Glossary : Book

- A. Song : Lyrics
B. Poem : Stanza
C. Editorial : New paper
D. Rosary : Beads

2. Rebel : Soldier

- A. Jail - Convicts
B. Traitor - Warrior
C. Kidnapping : Hostages
D. Hero : Patriot

3. Judge : Gavel

- A. Shoes : Tennis
B. Conductor : Coliseum
C. Teacher : Classroom
D. Knife : Butcher

4. Big Dome : Cubao

- A. Monumento : Bonifacio
B. Astrodome : Coliseum
C. Oblation : UP
D. San Juan : Pinaglabanan

5. Speedometer : Speed

- A. Wind vane : Director
B. Temperature : Thermometer
C. Odometer : Pressure
D. Barometer : Degrees

6. Lion : Lioness

- A. Hen : Cock
B. Doe : Deet
C. Pony : Cock
D. Fox : Vixen

7. Galaxies : Universe

- A. Stars : Galaxy
B. Moon : Nebula
C. Planets : Universe
D. Countries : Continent

8. Stain : Bleach

- A. Name : Sure Name
B. Grease : Car
C. Toothpaste : Dental
D. Mistake : Eraser

9. Paper : Bin

- A. Glass : Water
B. Toot : Shoe
C. Garbage : Trash Can
D. Cabinet : Plate

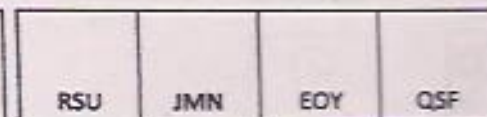
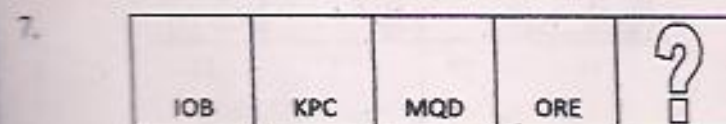
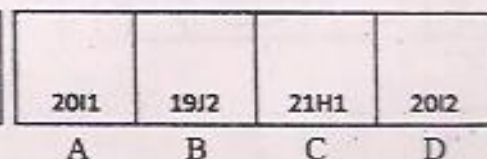
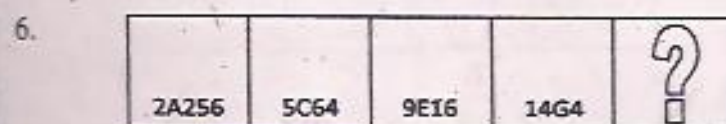
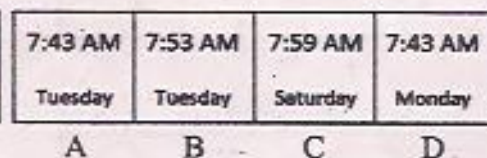
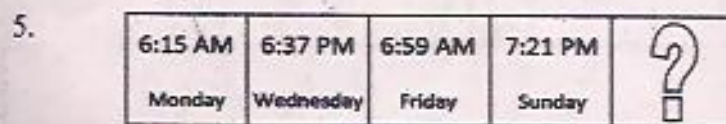
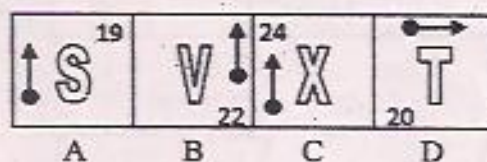
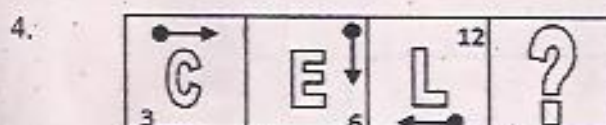
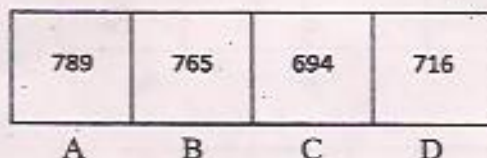
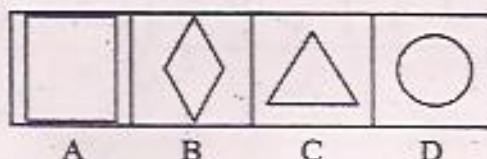
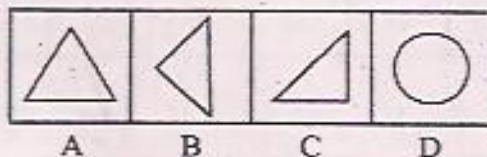
10. Love : Heart

- A. Star : Christmas
B. Thought : Brain
C. Food : Stomach
D. Nails : Fingers

11. Investigator : Crime
A. Gambler : Casino
B. Orator : Contest
C. Singer : Contest
D. Player : Game
12. Jose Rizal : Noli Me Tangere
A. Ian Fleming : James Bond
B. Magellan : Philippines
C. FPJ : Aguila ng Maynila
D. Graciano Lopez Jaena : La Solidaridad
13. Tee-Off: Golf
A. Send-off : Journey
B. Toast : Reception
C. Eagle : Golf
D. Take-off : Flight
14. Snake : Reptile
A. Bird: Pheasant
B. Fish : Whale
C. Cat : Purr
D. Whale : Mammal
15. Limousine : Car
A. Gravel : Sand
B. Gold : Jewelry
C. Rock : Mountain
D. Mansion : House
16. Moriones : Marinduque
A. Baguio : Panagbenga
B. Quiapo : Black Nazarene
C. Bangkusay : Tondo
D. Ati Atihan: Aklan
17. Con : seconds
A. Time : Clock
B. Gigabyte : Bit
C. Kilometers : Mile
D. Four : Three
18. Car : Race Tracks
A. Bus : City
B. Motorcycle : Rider
C. Bike : Shoes
D. Horse : Horse Track
19. Plumage : Bird
A. Mane : Horse
B. Hide: Cow
C. Main : Hair
D. Snakes : Scales
20. Pot : Kitchen
A. Car : Road
B. Test Tube : Laboratory
C. Street : Children
D. Yatch : Cabin
21. Purefoods : Pba
A. Jaworski, Coach
B. La Lakers Nba
C. Tim Cone : Alaska
D. Araneta : Cubao
22. Cuba : Fidel Castro
A. Pangasinan : Fidel Ramos
B. Gen San : Manny Pacquiao
C. Usa : Barack Obama
D. China : Great Wall
23. Porcelain : Plate
A. Cotton: Shirt
B. Road : Asphalt
C. Shoes : Sole
D. Twine : Rope
24. Romeo : Juliet
A. Sodom: Gomorra
B. Fat : Thin
C. Anthony : Cleopatra
D. Jack : Jill
25. Bangkok : Thailand
A. San Francisco : Us
B. France : Greece
C. Manila : Philippines
D. Hong Kong : China

ABSTRACT REASONING

Directions: At the left side of each item are set or series of symbols or figures which are related to each other in certain way. Find which symbol or figure complete the series.



8.

80	65	51	38	26	?
----	----	----	----	----	---

21	17	15	23
----	----	----	----

A B C D

9.

112	28	32	8	12	?
-----	----	----	---	----	---

6	10	3	4
---	----	---	---

A B C D

10.

17	1	15	2	13	?
----	---	----	---	----	---

3	7	9	5
---	---	---	---

A B C D

11.

AbzY9	CdxW8	EfuV7	?
-------	-------	-------	---

GhTs8	GhtS7	GhtS6	GhtS5
-------	-------	-------	-------

A B C D

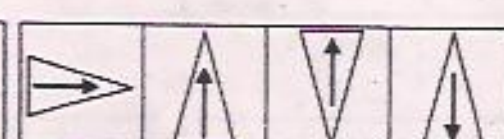
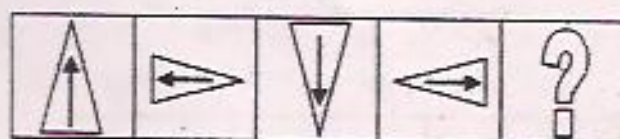
12.

AzE9	ByI8	CxL7	DwN6	?
------	------	------	------	---

EvO5	EwN6	GhtS6	GhtS5
------	------	-------	-------

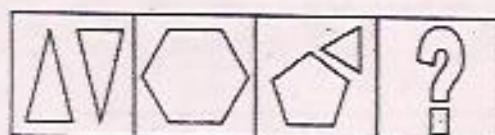
A B C D

13.



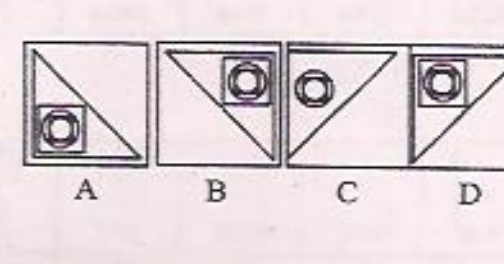
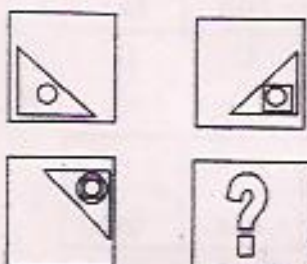
A B C D

14.



A B C D

15.



A B C D

16.



A B C D

17.

12	15	11	12	10	9	?
5	36	4	33	3	30	

2	6	11	12	7	12	9	27
4	10	10	28	4	21	9	18

A B C D

18.

5	3	15	9	45	27	?
1	10	3	30	9	90	

135	81	39	21	135	81	31	18
27	405	7	78	27	270	7	78

A B C D

19.



A B C D

20.

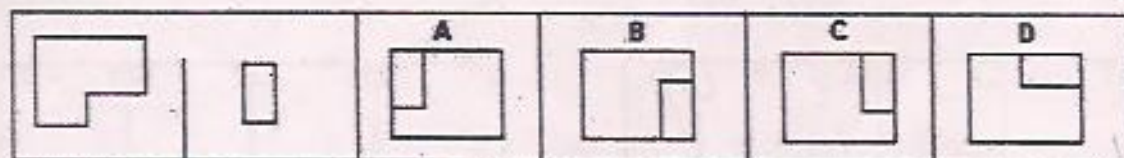


A B C D

SPATIAL REASONING

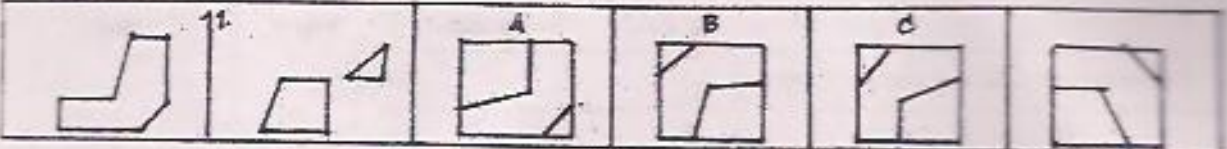
Directions: Think of the figures in the left part of each frame as pieces of boards/cutouts. Mentally slide around one or more pieces without lifting nor turning them over and fit them together to form one of the following figures marked as A, B, C or D shown below:

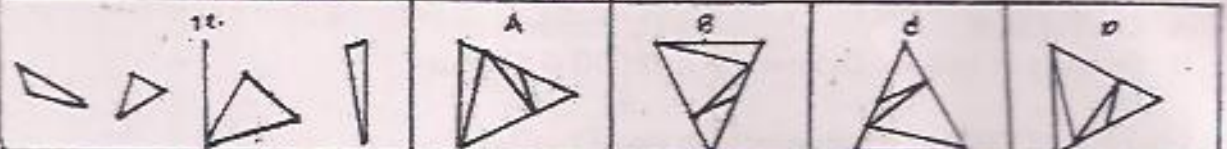
Sample Problem:

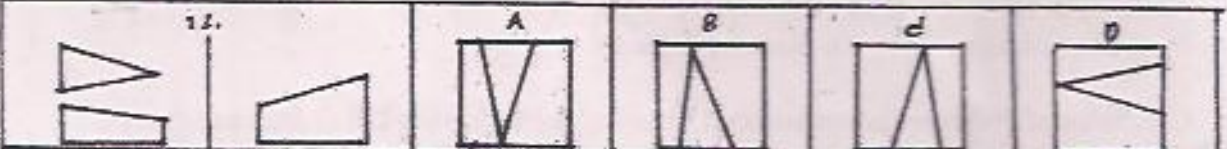


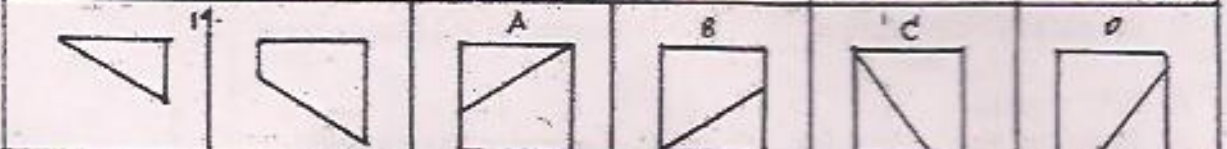
In the sample problem, the correct answer is C because it was formed by sliding two pieces around until they fit together.

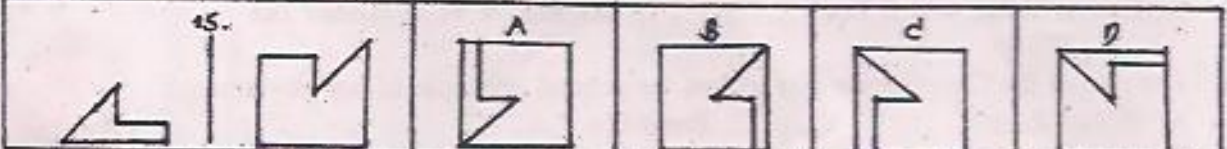
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

11. 

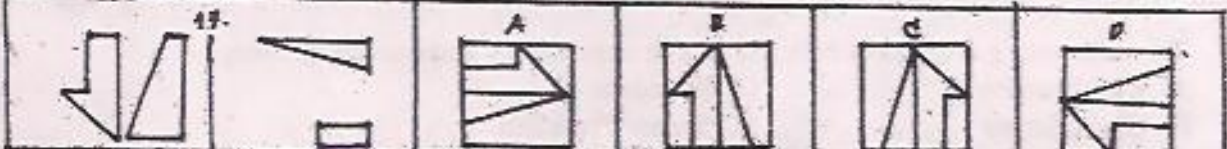
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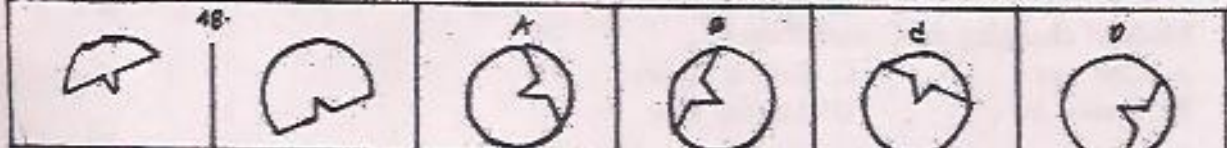
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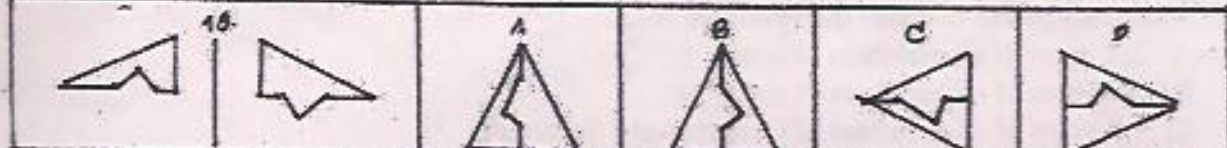
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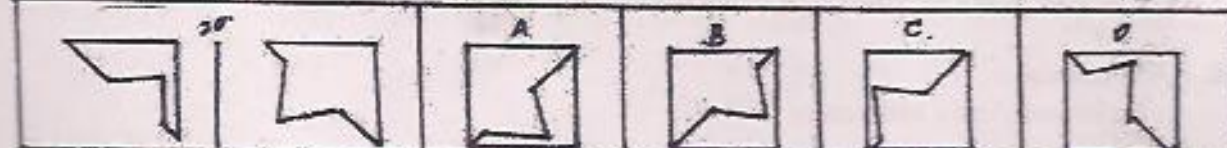
15. 

16. 

17. 

18. 

19. 

20. 

GENERAL INFORMATION / CURRENT EVENTS

Directions: *Select the best answer.*

1. The Commander-in-chief of the AFP is the...
A. Chief of Staff C. President
B. Secretary of National Defense D. DILG Secretary
2. Graduates of PMA are commissioned in the AFP as...
A. Inspectors C. ILTs
B. 2 LTs / Ensigns D. Reserve Officers
3. Graduates of PNPA are commissioned in any of the following DILG Bureaus except...
A. Armed Forces of the Philippines C. Philippine National Police
B. Bureau of Fire Protection D. Bureau of Jail Management
4. E - VAT means...
A. Expanded Value added Tax C. Expansive Value added Tax
B. Excess Value Added Tax D. Expensive Value Added Tax
5. The part of the Constitution that recites the general principle of our government...
A. Bill of Rights C. Preamble
B. National Territory D. Effectively Clause
6. The Supreme Court is composed of the Chief Justice and...
A. 15 Associate Justices C. 10 Associate Justices
B. 14 Associate Justices D. 7 Associate Justices
7. The following government officials can be removed by Impeachment except...
A. Chief Justice C. President
B. Ombudsman D. Senate President
8. Mode of changing the Constitution is...
A. Con Ass C. People Power
B. Con- Con D. Martial Law
9. Votes required to override the President veto...
A. 2/3 votes of all members of senate
B. 2/3 votes of all members of congress
C. 1/3 votes of all members of Congress and Senate
D. a simple Majority vote of all members of congress
10. RAM means...
A. Reformed Army Movement

- B. Reformed Armed Forces Movement
 - C. Reinvent the Armed Forces Movement
 - D. Reformed the Armed Forces Movement
11. YOU means...
- A. Youth Officers Union
 - C. Young Officers Union
 - B. Youth Oriented Union
 - D. Young Officers Unified
12. OPEC means ...
- A. Oil producing Eastern Country
 - B. Oil Producing Economic Country
 - C. Organization of Petroleum European Country
 - D. Organization of Petroleum Economic Country
13. The 5 rings in Olympics symbolize...
- A. United States, Canada, Germany, Australia, Japan
 - B. China, Japan, United States, Russia and Saudi Arabia
 - C. Asia, Europe, South America, North America, Australia
 - D. Basketball, Baseball, Volleyball, Gymnastics, Swimming
14. The first Asian Boxer to hold belts in four weight division is...
- A. Gabriel "Flash" Elorde
 - C. Pancho Villa
 - B. Manny "Pacman" Pacquiao
 - D. Luisito Espinosa
15. The chinese leader who once wrote the phrases "A journey of a thousand miles must begin with the first step" is...
- A. Buddha
 - C. Lao Tsu
 - B. Mao Tse Tung
 - D. Mark Twain
16. The first Filipino Olympic Silver medalist is...
- A. Pancho Villa
 - C. Rolando Navarette
 - B. Mansueto "Onyok" Velasco
 - D. Anthony Villanueva
17. A street in New York famous for its financial institutions and interests and for stock transactions...
- A. New York Street
 - C. Bell Street
 - B. 7th Street
 - D. Wall Street
18. A term used in law forms for the unidentified male person prior to the discovery of the true name...
- A. Jane Doe
 - C. Juan de la Cruz
 - B. John Doe
 - D. AKA - also known as
19. Extreme fear or morbid dread of fire is...
- A. Pyrophobia
 - C. Pedophobia
 - B. Metrophobia
 - D. Phetophobia

20. Scientific study of punishments and prison management is known as...
- A. Photology
 - B. Pathology
 - C. Penology
 - D. Prisonology
21. A condition of general increase in prices of commodities vis-à-vis the decrease in the purchasing value of money is...
- A. Deflation
 - B. Recession
 - C. Inflation
 - D. Depression
22. Who once said: "There is nothing permanent except change?"
- A. Plato
 - B. John F. Kennedy
 - C. Heraclitus
 - D. Abraham Lincoln
23. It is the thin plastic disk, common in microcomputers.
- A. Hard disk
 - B. Floppy disk
 - C. Soft ware
 - D. Disk drive
24. It is the term used for medical evidence in legal proceedings.
- A. Hearsay rule
 - B. Direct evidence
 - C. Witness testimony
 - D. Forensic evidence
25. It signals the opening of the joint regular session of the House of Representative and the Senate.
- A. President's Ulat ng Bayan
 - B. President's Annual Address
 - C. State of the Nation Address
 - D. Annual Accomplishment Report

BIOLOGY TEST

	A	B	C	D
1.	o	•	o	o
2.	•	o	o	o
3.	o	•	o	o
4.	•	o	o	o
5.	•	o	o	o
6.	•	o	o	o
7.	o	o	•	o
8.	o	•	o	o
9.	•	o	o	o
10.	o	o	•	o
11.	•	o	o	o
12.	•	o	o	o
13.	o	•	o	o
14.	o	•	o	o
15.	•	o	o	o

CHEMISTRY TEST

	A	B	C	D
1.	o	o	•	o
2.	o	o	•	o
3.	o	•	o	o
4.	o	o	o	•
5.	o	o	o	•
6.	o	•	o	o
7.	o	•	o	o
8.	o	o	o	•
9.	•	o	o	o
10.	•	o	o	o
11.	o	o	o	•
12.	o	•	o	o
13.	•	o	o	o
14.	o	o	•	o
15.	•	o	o	o

PHYSICS TEST

	A	B	C	D
1.	o	o	o	•
2.	o	o	o	•
3.	o	o	•	o
4.	o	o	•	o
5.	o	•	o	o
6.	o	o	o	•
7.	•	o	o	o
8.	•	o	o	o
9.	•	o	o	o
10.	o	o	•	o
11.	o	o	o	•
12.	o	•	o	o
13.	•	o	o	o
14.	•	o	o	o
15.	•	o	o	o

ALGEBRA TEST

	A	B	C	D
1.	o	o	•	o
2.	o	o	•	o
3.	•	o	o	o
4.	o	•	o	o
5.	o	o	o	•
6.	•	o	o	o
7.	•	o	o	o
8.	•	o	o	o
9.	o	o	o	•
10.	o	•	o	o
11.	o	o	o	•
12.	o	o	•	o
13.	•	o	o	o
14.	o	o	•	o
15.	o	•	o	o
16.	o	•	o	o

PROBLEM SOLVING

	A	B	C	D
1.	•	o	o	o
2.	o	o	o	•
3.	o	•	o	o
4.	o	o	o	•
5.	o	o	o	•
6.	o	•	o	o
7.	o	•	o	o
8.	•	o	o	o
9.	o	o	•	o
10.	o	•	o	o
11.	•	o	o	o
12.	o	o	o	•
13.	o	o	•	o
14.	o	o	•	o
15.	o	•	o	o

TRIGONOMETRY TEST

	A	B	C	D
1.	•	o	o	o
2.	•	o	o	o
3.	o	o	o	•
4.	o	o	•	o
5.	o	o	•	o
6.	o	•	o	o
7.	•	o	o	o
8.	•	o	o	o
9.	•	o	o	o
10.	o	•	o	o
11.	o	•	o	o
12.	o	•	o	o
13.	o	o	•	o
14.	o	o	o	•
15.	•	o	o	o

GEOMETRY TEST

	A	B	C	D
1.	o	•	o	o
2.	•	o	o	o
3.	o	o	•	o
4.	•	o	o	o
5.	o	•	o	o
6.	•	o	o	o
7.	o	o	o	•
8.	•	o	o	o
9.	•	o	o	o
10.	•	o	o	o
11.	o	o	•	o
12.	•	o	o	o
13.	•	o	o	o
14.	o	o	o	•
15.	o	o	•	o

	A	B	C	D
1.	o	•	o	o
2.	o	o	o	•
3.	o	o	•	o
4.	o	•	o	o
5.	o	•	o	o
6.	o	o	o	•
7.	o	o	o	•
8.	•	o	o	o
9.	o	o	o	•
10.	•	o	o	o
11.	o	•	o	o
12.	o	o	o	•
13.	o	•	o	o
14.	o	o	o	•
15.	o	o	•	o

READING COMPREHENSION TEST

PARAGRAPH ORGANIZATION TEST

	A	B	C	D	E
1.	o	o	•	o	o
2.	o	o	o	o	•
3.	o	o	o	•	o
4.	o	o	o	o	•
5.	•	o	o	o	o
6.	o	o	o	o	•
7.	•	o	o	o	o
8.	•	o	o	o	o
9.	o	o	o	o	•
10.	o	•	o	o	o
11.	o	o	o	o	•
12.	o	o	o	•	o
13.	o	o	o	o	•
14.	o	o	o	•	o
15.	•	o	o	o	o
16.	o	•	o	o	o
17.	o	o	•	o	o
18.	o	o	o	•	o
19.	o	o	•	o	o
20.	o	•	o	o	o
21.	o	o	•	o	o
22.	o	o	•	o	o
23.	•	o	o	o	o
24.	o	o	o	•	o
25.	•	o	o	o	o
26.	o	o	•	o	o

	A	B	C	D	E
1.	o	o	•	o	o
2.	o	o	o	•	o
3.	o	•	o	o	o
4.	•	o	o	o	o
5.	o	o	•	o	o
6.	o	o	•	o	o
7.	•	o	o	o	o
8.	•	o	o	o	o
9.	•	o	o	o	o
10.	o	•	o	o	o
11.	o	o	•	o	o
12.	o	•	o	o	o
13.	o	o	•	o	o
14.	•	o	o	o	o
15.	•	o	o	o	o
16.	•	o	o	o	o
17.	o	•	o	o	o
18.	o	o	•	o	o
19.	o	o	•	o	o
20.	o	o	•	o	o
21.	•	o	o	o	o
22.	•	o	o	o	o
23.	•	o	o	o	o
24.	o	•	o	o	o
25.	•	o	o	o	o

SPATIAL RELATION

	A	B	C	D
1.	o	•	o	o
2.	o	o	o	•
3.	o	o	•	o
4.	o	•	o	o
5.	o	•	o	o
6.	o	o	o	•
7.	o	o	o	•
8.	•	o	o	o
9.	o	o	o	•
10.	•	o	o	o
11.	o	•	o	o
12.	o	o	o	•
13.	o	•	o	o
14.	o	o	o	•
15.	o	o	•	o
16.	o	•	o	o
17.	o	o	•	o
18.	•	o	o	o
19.	o	•	o	o
20.	•	o	o	o

PHYSICS TEST

- Given: Velocity = 10 m/s, distance = 20 m
Velocity = distance/time
time = (20 m) / (10 m/s) = 2 secs
- zero acceleration: no change in velocity
- force = mass x acceleration
2force = 2mass x acceleration
~~f~~force = ~~2~~mass x acceleration
acceleration = force/mass
- Given: $V_{\text{initial}} = 100 \text{ m/s}$, acceleration = 10 m/s², time = 10 sec
 $V_{\text{final}} = V_{\text{initial}} + \text{acceleration} \times \text{time}$
 $V_{\text{final}} = 100 \text{ m/s} + 10 \text{ m/s}^2 \times 10 \text{ s}$
 $V_{\text{final}} = 200 \text{ m/s}$
- $KE = \frac{1}{2} \text{ mass} \times (\text{velocity})^2$
 $KE = \frac{1}{2} \text{ mass} \times (2\text{velocity})^2$
 $KE = \frac{1}{2} \text{ mass} \times 4\text{velocity}$
- distance = 100 km, time = 5 hours
ave. speed = distance / time
ave. speed = 100 km / 5 hours
ave. speed = 20 km / hour
- $R_{\text{total}} = 1/R_1 + 1/R_2 + 1/R_3$
 $R_{\text{total}} = 1/10 + 1/10 + 1/10$
 $R_{\text{total}} = 0.10 + 0.10 + 0.10$
 $R_{\text{total}} = .3 \text{ ohms}$

ALGEBRA TEST

- $c/d - c/f = c/(d-f)$
- $(x^3 y^5)^3 = x^{15} y^{25}$
- $(a/b + c/d)/e = ((ad + cb)/bd)/e = (ad + cb)/bde$
- $\sqrt{18} + \sqrt{32} = 3\sqrt{2} + 4\sqrt{2} = 7\sqrt{2}$
- $a^3 = 27$; $a = 3$ $b^3 = 8$; $b = 2$ $a+b$ $3+2 = 5$
- $5a^2 = 30 \rightarrow a^2 = 6 \rightarrow a = \sqrt{6}$
- (1) $a+b = 2c$ and (2) $a-b = 4d$
Substitute (1): $a = 2c - b$ to (2): $a - b = 4d$
to get: $2c - b - b = 4d$
 $2c - 2b = 4d$
 $c - b = 2d$
 $b = c - 2d$
- $6a^2 + 24a + 24$
 $6(a^2 + 4a + 4)$
 $6(a+2)(a+2)$
- $(x+2)(x-2)$
 $x^2 + 2x - 2x - 4$
- $x - y = 5$ substitute: $x = 3$
 $3 - y = 5 \rightarrow y = -2$
 $x^2 + y^2 \rightarrow (-2)^2 + (3)^2 = 13$
- $3x + 2y = 1$; $2x + y = 5$
 $3x + 2y = 1$ $4x + 2y = 10$
 $-4x + 2y = 10$
 $-x = -9$ $2(9) + y = 5$
 $x = 9$ $18 + y = 5$
 $y = -13$
- substitute $x = -2$ and $y = 1$
to: $(3x^2y + 3xy^2)(x+15)$
 $(3(-2)^2(1) + 3(-2)(1)^2)(-2+15)$
 $(3(4)(1) + 3(-2)(1))(13)$
 $(12-6)(13)$
 $(6)(13)$
 78
- $\sqrt[3]{8b^3c^6} = \sqrt[3]{8b^3c^6} = 2^{3/3} b^{3/3} c^{6/3} = 2bc^2$
- $x^2x^2 = x^{2+2} = x^4$

TRIGONOMETRY TEST

1. given: $a=5$ and $c=9$

Pythagorean theorem: $a^2 + b^2 = c^2$

Solution: $c^2 - a^2 = b^2$

$$9^2 - 5^2 = b^2$$

$$b = \sqrt{56} = 7.48 \text{ cm}$$

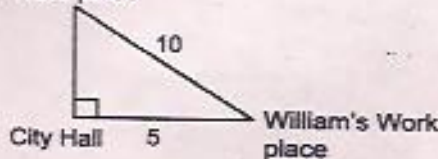
2. $220^\circ \times \pi/180^\circ = 22/180 \pi = 11/9 \pi$

3. given: side of square = 10

Formula for diagonal of square:

$$\text{diagonal} = \text{side} \sqrt{2} = 10\sqrt{2}$$

Harry's
Work place



4.

a

From Pythagorean theorem: $10^2 - 5^2 = a^2$

$$a^2 = 75 \rightarrow a = 5\sqrt{3}$$

5.



$$h^2 = 8^2 - 4^2$$

$$h = \sqrt{48}$$

$$h = 4\sqrt{3}$$

6. $\log_b 64 = 3$: $\log_b a = c \rightarrow b^c = a$

$$b^3 = 64$$

$$b = \sqrt[3]{64}$$

$$b = 4$$

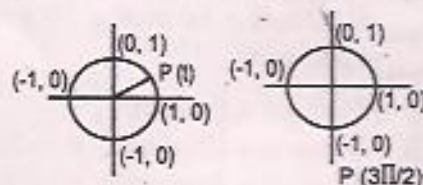
7. $120^\circ \rightarrow$ clockwise; $-240^\circ \rightarrow$ counterclockwise

8. $\sin 30^\circ$ is a special function with a value of $1/2$

9. $\sin \theta = 1/\csc \theta$: $\sin 30^\circ = 1/2 \rightarrow \csc 30^\circ = 2/1$

$$\begin{aligned} 11. & \frac{1}{\sqrt{1 - \cos^2 \theta}} \\ &= \frac{1}{\sqrt{\sin^2 \theta}} \\ &= \frac{1}{\sin \theta} \\ &= \csc \theta \end{aligned}$$

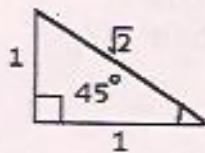
12. $P(3\pi/2)$ is a trigonometric point in a unit circle with $3\pi/2$ clockwise from $(1,0)$.
moving $3\pi/2$ clockwise from $(1,0)$ will give the point $(0,-1)$



1. $\theta = \pi \rightarrow \theta = 180^\circ \rightarrow \tan 180^\circ = 0$

2. $\sec^2 \theta - \tan^2 \theta = 1$: squared identity

3.



$$\begin{aligned} \sin 45^\circ &= \frac{1}{\sqrt{2}} = \frac{1 \times \sqrt{2}}{\sqrt{2} \sqrt{2}} = \frac{\sqrt{2}}{2} \\ &= \frac{\sqrt{2}}{2} \end{aligned}$$

$$\begin{aligned} &= 2\pi/9 \\ &= 18\pi \end{aligned}$$

GEOMETRY TEST

2. complement of an angle = $(90 - \text{angle})$
 supplement of an angle = $(180 - \text{angle})$
 $(90 - \text{angle}) = 2(180 - \text{angle})$
 $90 - \text{angle} = 360 - 2(\text{angle})$
 $2(\text{angle}) - \text{angle} = 360 - 90$
 $\text{angle} = 270^\circ$

3. diagonal of square = 5 cm
 diagonal of square = $\text{side}\sqrt{2}$
 $5 \text{ cm} = \text{side}\sqrt{2}$
 $\text{side} = 5/\sqrt{2}$

$$\begin{aligned}\text{Area of square} &= \text{side}^2 \\ &= (5/\sqrt{2})^2 \\ &= 25/2 \\ &= 12.5 \text{ cm}^2\end{aligned}$$

4. Formula: number of diagonals = $n(n-3)/2$
 where: n = no. of sides of a polygon
 Solution: $(6)(6-3)/2 = (6 \times 3)/2 = 18/2 = 9$

5. $x = \text{angle}$; $2x = \text{larger angle}$
 $x + 2x = 180 \rightarrow 3x = 180 \rightarrow x = 60$
 larger angle = $(2)(60) = 120^\circ$

6. altitude = 6 side = 10
 Area of rhombus = $\text{side} \times \text{altitude}$
 $= 10 \times 6$
 $= 60$

$$\begin{aligned}\text{Area of rhombus} &= \frac{1}{2}(\text{diagonal 1})(\text{diagonal 2}) \\ 60 &= \frac{1}{2}(8)(\text{diagonal 2}) \\ \text{diagonal 2} &= 15 \text{ cm}\end{aligned}$$

7. base radius = 5 cm height = 7 cm
 Surface Area = $2\pi \text{radius}^2 + 2\pi \text{radius} \times \text{height}$
 $= 2\pi 5^2 + 2\pi 5(7)$
 $= 120\pi \text{ cm}^2$

8. base 1 = 8 cm; height = 9 cm; base 2 = 4 cm
 Area of a trapezoid = $\frac{1}{2}(\text{height})(\text{base 1} + \text{base 2})$
 $= \frac{1}{2}(9)(8+4)$
 $= 54 \text{ cm}^2$

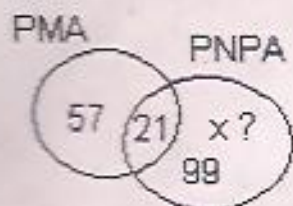
9. base radius = 3 cm height = 13 cm
 Surface Area = $\pi r^2 + \pi r\sqrt{r^2 + h^2}$
 $= \pi 3^2 + \pi 3\sqrt{3^2 + 13^2}$
 $= 154.02 \text{ cm}^2$

12. perimeter = 981 cm number of sides = 9
 perimeter = number of sides $\times$ length of side
 $981 = 9 \times \text{length of side}$
 $\text{length} = 981/9$
 $\text{length} = 109 \text{ cm}$

14. circumference = πd
 $25\pi = \pi d$
 diameter = 25
 diameter = diagonal of the square
 diagonal of the square = $\text{side}\sqrt{2}$
 $25 = \text{side}\sqrt{2}$
 $\text{side} = 25/\sqrt{2}$
 Area of square = side^2
 $= (25/\sqrt{2})^2$
 $= 625/2$
 $= 312.5 \text{ cm}^2$

15. radius = 9
 circumference = $2\pi \text{radius}$

- 156 - PMA and PNPA
21 - PMA and PNPA (both)
57 - PMA



- $A - \text{north} = 36 \text{ m/h}$
 $B - \text{south} = 15 \text{ m/h}$
 $36 \text{ m/h} = 36 \text{ m}/60 \text{ min}$
 $= 3/5 \text{ m/min}$
 $15 \text{ m/h} = 15 \text{ m}/60 \text{ min}$
 $= 1/4 \text{ m/min}$

After 2 minutes

$$3/5 + 1/4 \quad 1 \text{ min}$$

$$2(3/5 + 1/4) \quad 2 \text{ min}$$

$$2((12+5)/20)$$

$$2(17/20)$$

$$17/10 \text{ miles or } 1.7 \text{ miles}$$

- Let: A = number of books of Cadet A
 B = number of books of Cadet B
 $A = 3B$ —————> (1): Cadet A had 3 times as much as book as Cadet B
 $A - 12 = B + 12$ —> (2): Cadet A gave Cadet B 12 books. They had the same number of books.
 Substitute (1) to (2)
 $3B - 12 = B + 12$
 $3B - B = 12 + 12$
 $2B = 24$
 $B = 12$

ABSTRACT REASONING

1. **Correct answer is B = relationship between pairs**

The first frame consists of two figures, a circle and a rectangle. The circle was removed from the 2nd frame and only the rectangle was left. The third frame consists of a diamond so the fourth figure must be related to the figure in the third frame.

2. **Correct answer is C = decreasing number of sides of a polygon.**

- | | |
|------------------------|------------------------|
| 1.) Hexagon - 6 sides | 3.) square - 4 sides |
| 2.) Pentagon - 5 sides | 4.) triangle - 3 sides |

3. **Correct answer is A = number series**

The 1st digit increased by 1, The 2nd digit increased progressively (1,2,3,?), The 3rd digit increased by 2.

4. **Correct answer is C = alternate progression in the design.**

Each set consists of a letter and its corresponding number in the alphabet and also an arrow. The position of the number relative to the letter moves in a counter clockwise direction. The number increases progressively from 3, 6, 12, twice the previous number. Therefore 24 is the next number corresponding to letter x.

5. **Correct answer is A = alternate progression**

From 6:15 AM (1st frame) to 6:59 AM (3rd frame) has an increase of 44 minutes while from 6:37 PM (2nd frame) to 7:21 PM (4th frame) has an increase of 44 minutes. The fifth frame must be AM. 6:59 + 44 minutes is 7:43 AM. The day alternately progresses, therefore, 7:43 AM Tuesday is the correct answer.

6. **Correct answer is A = Number/ Letter Pattern**

First digit increases progressively by 1. The letter changes in the forward order, every other letter is skipped. Last number is divided by 4 to arrive at the next last number.

7. **Correct answer is D = Letter Pattern**

1st letters is forward order wherein every other letter skipped. 2nd letter is forward order and 3rd letter - forward order.

8. **Correct answer is C = Number Pattern**

The series decreases progressively starting from 15.

9. **Correct answer is C = Number Pattern**

1st and 3rd number were divided by 4 to arrive at the 2nd and 4th numbers respectively. The 5th digit when divided by 4 give 3 as the correct answer.

10. **Correct answer is A = Number Pattern**

1st, 3rd and 5th digits decreases progressively by 2. While 2nd and 4th digits increases by 1. Therefore, the next digit will be 3.

11. Correct answer is C = Letter Pattern

1st two letters is forward order. Last two numbers is backward order. Last digit decreases by 1.

12. Correct answer is A = Letter Pattern

1st letter is forward order. 2nd letter is backward order. 3rd order is forward order, skipped progressively (4, 3, 2). The number decreases progressively by 1.

13. Correct answer is B = Alternate Progression

The triangle is rotated clockwise. The arrow is rotated counter clockwise.

14. Correct answer is D = Relationship between pairs

The two triangles at the first frame has a total of six sides, same with the hexagon at the 2nd frame. The figures at the 3rd figures has a total of 8 sides, therefore, hexagon is the correct answer.

15. Correct answer is A = Relationship between pairs

The 2nd figure is the image of the first figure as seen from the mirror. Therefore, the fourth figure should be a mirror image of the third figure.

16. Correct answer is B = Clockwise movement

From left to right, the holes move in a clockwise direction.

17. Correct answer is D

The upper right is derived by multiplying the lower left by 3. The lower right is derived by multiplying the upper left by 3. The upper left number is decreased by 1 to get the upper left number of the next box. The lower left number is decreased by 1 to get the lower left number of the next box.

18. Correct answer is C

The upper right is derived by multiplying the lower left by 3. The lower right is derived by multiplying the upper left by 2. The upper left number is multiplied by 3 to get the upper left number of the next box. The lower left number of the next box is the same as the upper right number of the previous box.

19. Correct answer is A

The dark square of the left most columns is moving one square upward while the rest is stand still.

20. Correct answer is C

The lower dark square is moving one step from the right to the left while the upper square is moving two squares from right to left. Every time they reach the leftmost square, they move to the next row of squares upward.

KEY TO CORRECTION

Practice Test in Natural Science

- 1.) B
- 2.) D
- 3.) C
- 4.) D
- 5.) B
- 6.) B
- 7.) A
- 8.) C
- 9.) B
- 10.) B
- 11.) 42.22°F
- 12.) B
- 13.) C
- 14.) A
- 15.) D
- 16.) A
- 17.) B
- 18.) D
- 19.) B
- 20.) D
- 21.) D
- 22.) A
- 23.) B
- 24.) B
- 25.) C

Practice Test in Algebra

- 1.) B
- 2.) A
- 3.) D
- 4.) B
- 5.) C
- 6.) D
- 7.) B
- 8.) C
- 9.) B
- 10.) C

Practice Test in Trigonometry

- 1.) D
- 2.) A
- 3.) B
- 4.) B
- 5.) A
- 6.) B
- 7.) B

- 8.) C
- 9.) B
- 10.) B

Practice Test in Geometry

- 1.) A
- 2.) D
- 3.) D
- 4.) C
- 5.) D
- 6.) B
- 7.) C
- 8.) C
- 9.) B
- 10.) B

Practice Test in Reading and Paragraph Organization

- 1.) D
- 2.) D
- 3.) C
- 4.) A
- 5.) A
- 6.) B
- 7.) A
- 8.) D
- 9.) A
- 10.) C
- 11.) D
- 12.) B
- 13.) A
- 14.) A
- 15.) D

Practice Test in Identification of Errors

- 1.) B
- 2.) C
- 3.) D
- 4.) A
- 5.) D
- 6.) C
- 7.) D
- 8.) A
- 9.) C
- 10.) B

KEY TO CORRECTION

Practice Test in Natural Science

- 1.) B
- 2.) D
- 3.) C
- 4.) D
- 5.) B
- 6.) B
- 7.) A
- 8.) C
- 9.) B
- 10.) B
- 11.) 42.22°F
- 12.) B
- 13.) C
- 14.) A
- 15.) D
- 16.) A
- 17.) B
- 18.) D
- 19.) B
- 20.) D
- 21.) D
- 22.) A
- 23.) B
- 24.) B
- 25.) C

Practice Test in Algebra

- 1.) B
- 2.) A
- 3.) D
- 4.) B
- 5.) C
- 6.) D
- 7.) B
- 8.) C
- 9.) B
- 10.) C

Practice Test in Trigonometry

- 1.) D
- 2.) A
- 3.) B
- 4.) B
- 5.) A
- 6.) B
- 7.) B

- 8.) C
- 9.) B
- 10.) B

Practice Test in Geometry

- 1.) A
- 2.) D
- 3.) D
- 4.) C
- 5.) D
- 6.) B
- 7.) C
- 8.) C
- 9.) B
- 10.) B

Practice Test in Reading and Paragraph Organization

- 1.) D
- 2.) D
- 3.) C
- 4.) A
- 5.) A
- 6.) B
- 7.) A
- 8.) D
- 9.) A
- 10.) C
- 11.) D
- 12.) B
- 13.) A
- 14.) A
- 15.) D

Practice Test in Identification of Errors

- 1.) B
- 2.) C
- 3.) D
- 4.) A
- 5.) D
- 6.) C
- 7.) D
- 8.) A
- 9.) C
- 10.) B